Project Manual

PROJECT NO. 071108-00

PROJECT TITLE: Replace Roofs – Administration and Health Services Buildings

DATE: 2 November 2026

State University of New York
at
Binghamton



Expires: 10/2028



Expires 09/30/2027

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

Bell & Spina, Architects-Planners, P.C.
215 Wyoming St.
Syracuse, New York 13204



REGISTRATION EXPIRES: 08/31/2028

Popli Design Group
555 Penbrooke Dr
Penfield, New York 14526

Ambient Environmental, Inc
828 Washington Avenue
Albany, NY 12203

Trophy Point, d.b.a.
YA Group
4588 South Park Ave
Blasdell, NY 14219

Ryan Biggs Clark Davis
Engineering & Surveying, D.P.C
1326 New Seneca Tpke
Skaneateles, New York 13152

August 2020

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STATE UNIVERSITY CONSTRUCTION FUND
NOTICE TO BIDDERS

The State University Construction Fund will receive sealed Proposals for Project No. 071108-00 Titled Replace Roofs – Administration and Health Services Buildings at The State University of New York at Binghamton until 2:00 p.m. Local Time on December 2, 2026 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 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 within 610 calendar days from receipt of the Notice to Proceed.

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 November 12, 2026 from 10:00AM – 12:00PM, with all contractors assembled at the Couper Administration Building, Conference Room 606. For additional information, see Section 00 25 13 PreBid Meetings.

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

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

Consultant's Office	Bell & Spina, Architects – Engineers, Inc. 215 Wyoming St Syracuse, NY 13204 315-488-0377

Campus at which the work is to be performed

Binghamton University
4400 Vestal Pkwy E
Binghamton, NY 13902

Dodge Reports	Visit www.construction.com Email: support@construction.com
ConstructConnect	Visit www.cmdgroup.com. Email: content@constructconnect.com
Construction Journals	Visit www.constructionjournal.com
Construction Contractors Association (Hudson Valley)	330 Meadow Ave, Newburgh, NY 12550 www.ccahv.com
Eastern Contractors Association, Inc.	6 Airline Drive, Albany, NY 12205 www.ecainc.org
Builders Exchange of the Southern Tier	65 East Main St., Falconer, NY 14733 www.bxstier.com
Syracuse Builders Exchange	6563 Ridings Road, Syracuse, NY 13206 www.syrabex.com
Minority Contractors Assoc of Central NY	2610 South Salina Street, Suite 7, Syracuse, NY 13205. Email: stevencoker@rocketmail.com
Northern NY Builders Exchange	
Mohawk Valley Bldrs Exchange	10 Main Street, Suite 202, Whitesboro NY 13492
Bldrs Exchange of the Southern Tier-East	15 Belden Street, Binghamton NY 13903-2159
Eastern Contractors Assoc	6 Airline Drive, Albany, NY 12205
Urban League of Rochester (Business Development Div)	265 N. Clinton Ave, Rochester NY 14605
NYS Assoc of Minority Contractors	Brooklyn Navy Yard Bldg. 280, 4th Fl, Brooklyn NY 11205
Albany Ctr for Economic Success	#101, 255 Orange Street, Albany, NY 12210

Plans will be available after November 3, 2026 from Plan & Print Systems, Inc., 6160 Eastern Ave., Syracuse, NY 13211, Phone: 315-437-5111, the Printer. Bidders will be able to access the project online at the Printer's web site: www.planandprint.com click on the icon "Plan Rooms", on the following page, click on "Public Plan Room" and type in Job Name and click on the Project Name to open the project, where the project details, bid set, addenda and current plan holders may be viewed and document may be ordered.

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

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

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

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

Please be advised that the Fund's insurance requirements are contained in Schedule A of Attachment A of the Construction Agreement. All insurance must be provided by companies approved by the Fund and be either licensed (admitted) by the New York State Department of Financial Services (NYS DFS) to issue insurance in the State of New York or authorized by NYS DFS and have an A.M. Best Company rating of "A-" Class "VII" or better. All successful bidders will be required to furnish a Performance Bond and a Labor and Material Bond pursuant to State Finance Law for 100% of the amount of the Contract.

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

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

SUCF.ConstructionBids@suny.edu to contact one of the following people:
Robbilee Luedtke (518) 320-1837, Samantha Lord, Jeremy Clausi, Kelly Whitbeck, or Nora Kanarkiewicz.

SUCF.OpportunityAdmin@suny.edu for MWBE SDVOB issues only:
Scott Clay, Joanne Lovelady, and Joe Francis.

SUCF.Insurance@suny.edu for insurance issues only:
Jacqueline Maher and Danielle Ruchel.

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

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

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

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

On bid day, bidders must:

- Be aware of the requirements of the **project specific** Section 00 21 13 10 Notice to Bidders.
- Be aware of the requirements of the **project specific** Section 00 21 13 20 *Information for Bidders*.
- Provide two (2) complete original **project specific** Proposals per Sections 3 and 5 of the *Information for Bidders.* **Proposals with major informalities will be rejected.**
  - Attachment A of the Proposal (List of Completed Similar Construction Contracts) must be completed. **Do not submit a blank form** or insert "refer to attached lists".
  - Before completing Attachment A, read the **project specific** requirements of Section 7 Qualification of Bidders and Section 01 11 00 Description of Work (Section A).
- Provide two (2) complete original Bid Bonds per the Instructions for Execution of Bid Bond and Acknowledgment, or other bid security per Section 6 of the *Information for Bidders.*
  - Use the Fund's form of Bid Bond with date Dec 2015 in the lower right-hand corner.
- Deliver the Proposals and bid security **using the special bid envelope** per the *Notice to Bidders.*
- Be in compliance with NYS Dept. of State registration requirements. Nominated subs must also comply. Business entities must be in the DOS database. Search for entities at this web site:
  - https://apps.dos.ny.gov/publicInquiry/
- Be aware that all insurance must be provided by companies approved by the Fund, 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 completed NYS Vendor Responsibility Questionnaire **For-Profit Construction** (CCA-2) per Section 8(1)a of the *Information for Bidders.*
     - Confirm your CCA-2 shows financial information required by Section 7(2) of the *Information for Bidders.*
     - Confirm your CCA-2 Attachment A shows completed construction contract information required by Section 7(3) of the *Information for Bidders.*
     - Confirm your CCA-2 includes the additional information requested for "Yes" responses, if any.
     - Confirm your CCA-2 Attachments A and B show current information for owners, architects and their current telephone numbers for contracts listed.
   - Provide names of proposed subcontractors and Attachment A's showing their experience per Section 8(1)c.iv of the *Information for Bidders.*

- Provide detailed descriptions of work for projects listed in Attachment A of your Proposal (List of Completed Similar Construction Projects) if such descriptions did not fit or if requested by the Fund.
- Cooperate with the Fund's Consultant and provide other information they may reasonably require to evaluate your bid in detail.

2. Within seven days after the time of the Bid Opening:
- Provide CCA-2 for each proposed subcontractor per Section 8(1)c of the *Information for Bidders.*
  - Confirm the CCA-2 includes the additional information requested for "Yes" responses.
  - Confirm the CCA-2 Attachments A and B show construction contract information for owners, architects and their current telephone numbers.
- Provide an MWBE Utilization Plan per Section 8(3) of the *Information for Bidders.*
- Provide an EEO Statement and Plan per Section 8(4) of the *Information for Bidders.*
- Provide a Construction Schedule per Section 8(5) of the Information for Bidders.
- Provide proof of workers' compensation, disability benefits insurance coverage, and as requested, names of all insurance carriers.
  - This is the Workers Comp/Disability link for employers: http://www.wcb.ny.gov/content/main/Employers/Employers.jsp
  - This is the link with a description of the required forms for Workers Compensation and Disability: http://www.osc.state.ny.us/agencies/guide/MyWebHelp/Content/XI/18/G.htm

3. Prior to the Fund sending you a Notice of Award letter:
- Provide additional information per Section 8(5) of the *Information for Bidders, if requested.*

4. After your receipt of the Notice of Award letter, provide the following by the date stipulated in the letter transmitting the Notice of Award:
- Sign and complete the Contractor's portion of the **Project Specific** Agreement sent to you by the Fund.
- Provide required bonds per Section 10 of the *Information for Bidders.*
- Provide the 120-day Construction Schedule required by the General Requirements, Special Conditions paragraph titled "Project Schedule."
- Provide the completed insurance forms per Sections 5.06 and 5.07 of the Agreement.

5. Prior to starting work:
- Be in receipt of the Notice to Proceed letter issued by the Fund.

Special Notice

Please be advised that Part 10 of the Proposal you signed requires your office to be timely and responsive in your submissions of information requested by the Fund or Consultant.

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

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STATE UNIVERSITY CONSTRUCTION FUND

INFORMATION FOR BIDDERS

Section 1 Definitions

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

Section 2 Issuance of Bidding and Contract Documents

Drawings and a Project Manual binding Bidding Documents, Contract Documents, and Technical Specifications will be issued by the Consultant upon request after payment of the deposit specified in the Notice to Bidders.

Section 3 Proposals

(1) Proposals must be submitted in duplicate on the forms provided by the Fund. They shall be addressed to the Fund in a sealed envelope, provided by the Fund, marked with the name and address of the bidder, the title of the Project and the Project number. The Fund accepts no responsibility for Proposals that may be delivered by any courier or other messenger service that does not contain all of the above-noted information on the outside of a sealed envelope. Facsimile or email copies of the Proposal will not be accepted by the Fund.

(2) All blank spaces in the Proposal must be filled in and, except as otherwise expressly provided in the Bidding Documents; no change is to be made in the phraseology of the Proposal or in the items mentioned therein.

(3) Proposals that are illegible or that contain omissions, errors, alterations, additions or items not called for in the Bidding Documents may be rejected as informal. In the event any bidder modifies, limits or restricts all or any part of its Proposal in a manner other than that expressly provided for in the Bidding Documents, its Proposal may be rejected as informal.

(4) Prices inserted shall be in whole dollar amount but if cents are inserted, the Fund shall round the amount down to the nearest whole number. Any Proposal may be considered informal which does not contain prices in words and figures in all of the spaces provided or which is not accompanied by a bid security in proper form at the time of bid. In addition, failure to include at the time of bid **a New York State Department of Labor ("DOL") Certificate of Registration ("Certificate of Registration") will result in the bid being rejected.**

a. In case any price shown in words and its equivalent shown in figures do not agree, the written words shall be binding upon the bidder. In case of a discrepancy in the prices contained in the Proposal forms submitted in duplicate by the bidder, the Proposal form which contains the lower bid shall be deemed the bid of the bidder; provided, however, the Fund at its election may consider the Proposal of such bidder informal.

(5) If the Proposal is made by a corporation, the names and places of residence of the president, secretary and treasurer shall be given. If by a partnership, the names and places of residence of the partners shall be given. If by a joint venture, the names and addresses of the members of the joint venture shall be given. If by an individual, the name and place of residence shall be given.

(6) No Proposal will be considered which has not been deposited with the Fund at the location designated in and prior to the time of opening of bids designated in the Bidding and Contract Documents. However, if a Proposal deposited with the Fund prior to the opening of bids is misplaced by the Fund and not opened by the Fund at the designated time of opening, then the Fund, in its sole discretion, may open such Proposal as soon as possible after the misplaced Proposal is discovered and confirmed to have been misplaced by the Fund. If the Fund decides to open such Proposal, the Fund will make reasonable attempts to notify the other bidders and allow such other bidders to view such opening by Webex or equivalent broadcast. Unopened Proposals will be returned to the bidder.

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

a. A written or email notice of modification or withdrawal shall be marked by the bidder with the name and address of the bidder, the title of the Project and the Project number. Upon receipt by the Fund, a duly authorized employee of the Fund shall note thereon the date and time of receipt and shall thereupon attach said written or email notice of modification or withdrawal to the envelope submitted by the bidder pursuant to subdivision (1) of this Section. Bid Modification email address: modifymybid@suny.edu . Submit modification amount only, (i.e., “deduct” or “add” $XXX, not revised total bid amount. For email notice, submit modification as an attachment in portable document format (PDF) on bidder’s letterhead signed by a duly authorized representative of the bidder.

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

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

(9) Withdrawal of Bid After the Bid Opening

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

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

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

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

v. Documentation demonstrating the financial impact to bidder to perform the project for the amount initially bid.

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

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

(10) Protesting the Bid Results after Bid Opening

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

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

Section 4 Examination of Bidding and Contract Documents

(1) Prospective bidders shall examine the Bidding and Contract Documents carefully and, before bidding, shall make written request(s) to the Consultant (with a copy thereof to the Fund) for an interpretation or correction of any ambiguity, inconsistency, or error therein which should be discovered by a reasonably prudent bidder.

a. Requests should be made as far in advance of, but not later than, the date and time scheduled for receipt of bids. In the judgment of the Fund, it may be impractical to address requests that are submitted too close to the bid opening date.
b. Requests for use of equivalent products shall comply with Section 2.20 of the Agreement.
c. Such interpretation or correction as well as any additional Contract provision(s) the Fund shall decide to include will be issued in writing by the Consultant as an Addendum, which will be sent to each person recorded as having received a copy of the Bidding and Contract Documents from the Consultant, and which also will be available at the places where the Bidding and Contract Documents are available for inspection by prospective bidders.
d. Such interpretation or correction or additional Contract provision(s) issued by Addendum may not satisfy a bidder's request nor result in Bidding and Contract Documents that are without ambiguity, inconsistency or error. Post bid, requests for interpretations or corrections may be made after execution of the Agreement in accordance with Section 01 26 13 Requests for Information of

the General Requirements and Sections 1.06, 2.01, 2.02, and 2.08 of the Agreement.

e. Such Addendum will become a part of the Bidding and Contract Documents and will be binding on all bidders whether or not the bidder receives or acknowledges the actual notice of it. Prospective bidders are responsible for ensuring that all Addenda have been incorporated into the bid. The requirements contained in all Bidding and Contract Documents shall apply to all Addenda.

(2) Only the written interpretation or correction so given by Addendum shall be binding.

a. Prospective bidders are warned that no trustee, officer, agent or employee of the Fund, Campus, or the Consultant is authorized to explain or interpret the Bidding and Contract Documents by any other method, and any such explanation or interpretation, if given, must not be relied upon.
b. The Fund has no obligation to provide responses.

Section 5 Computation of Bid

(1) In computing their bids, bidders are not to include the sales and compensating use taxes of the State of New York or of any city and county in the State of New York for any supplies or materials which are incorporated into the completed Project as the same is exempt from such taxes.

(2) Unit prices may be inserted in the Proposal by the Fund or the bidder at the discretion of the Fund. Unit prices shall be calculated using the quantity and dollar amounts for the corresponding allowance shown in the Proposal.

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

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

a. The Fund shall determine the lowest bid by adding to or deducting from the Total Bids of the bidders, the additive or deductive alternates, if any, that the Fund elects to accept after the opening of the bids.
b. Alternates will be accepted in the order they are set forth in the Proposal.
c. Alternates, if any, are described in Section 01 23 00 (Section B) of the Technical Specifications.

d. Rejected alternates will not be used in combination with the Total Bid and other accepted alternates, if any, to determine the low bidder.
e. Alternates will be accepted or rejected at the sole and absolute discretion of the Fund.

Section 6 Payment of Bid Security

(1) Each Proposal must be accompanied by the required amount of the bid security in the form of a bank draft or certified check, payable at sight to the Fund and drawn on a bank authorized to do business in the United States, or by a Bid Bond, on a form approved by the Fund, duly executed by the bidder as principal and having as surety thereon a surety company or companies, approved by the Fund, authorized to do business in the State of New York as a surety. Attorneys-in-fact who execute a Bid Bond on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.

(2) The Fund will return, without interest, the bid security of a bidder, unless such security be in the form of a Bid Bond which will not be returned by the Fund, in accordance with the following procedure:

a. To all bidders except the apparent three (3) lowest bidders within two (2) working days after the opening of bids.
b. To any bidder submitting a Bid Bond, meeting the requirements of paragraph (1) hereof, after the opening of bids, as a substitute for a bank draft or certified check within two (2) working days after the Fund's approval of such Bid Bond.
c. To the apparent three (3) lowest bidders, unless their bid security was previously returned, within two (2) working days after delivery to the Fund by the successful bidder of the executed Agreement and required Bonds, or within two (2) working days of the Fund's rejection of all bids or within two (2) working days after the expiration of forty-five (45) calendar days after the bid opening or within the time to which the issuance of a Notice of Award may have been extended, whichever event shall occur last.

(3) The Fund reserves the right to deposit bid security drafts or checks pending final disposal of them.

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

Section 7 Qualifications of Bidders

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

a. For scope and complexity, similar work is defined as multi-trade roofing replacement work, as further described in the General Requirements, Section 01 11 00, Description of work.

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

   i. If the List is not provided or is missing information, and/or is found to have erroneous information or information that is no longer current, a Proposal may be rejected as not responsive.
   ii. If requested by the Fund, the bidder may be permitted to add missing information, modify and/or explain erroneous information or information that is no longer current on the List. Modifications and/or explanations of the List must be received within 48 hours of receipt of the Fund's request.

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

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

(2) All prospective bidders must demonstrate to the satisfaction of the Fund that they have the skill and experience, as well as the necessary facilities, ample financial

resources, ability to manage staff and subcontractors effectively, ability to anticipate and plan construction work for optimal progress, ability to create, strive for and maintain working environments and relationships that are constructive, communicative and cooperative, organization and general reliability to do the work to be performed under the provisions of the Contract in a satisfactory manner and within the time specified.

(3) Each bidder must demonstrate to the satisfaction of the Fund that it has working capital available for the Project upon which it is bidding in an amount equal to 15 percent of the first $100,000 of the amount of its Total Bid plus 10 percent of the next $900,000 plus 5 percent of the remainder of its Total Bid. Working capital is defined as the excess of current assets over current liabilities. The Fund defines current assets as assets which can be reasonably expected to be converted into cash within a year, and current liabilities as debts which will have to be paid within a year.

(4). The Fund may make such investigation as the Fund deems necessary to determine the responsibility of any bidder or to determine the ability of any bidder to perform the Work. Bidders shall furnish to the Fund all information and/or data required by the Fund, including complete financial data, within the time and in the form and manner required by the Fund. The Fund reserves the right to reject any bid if the evidence required by the Fund is not submitted as required or if the evidence submitted by or the investigation of any bidder fails to satisfy the Fund that the bidder is responsible, or is able or qualified to carry out the obligations of the Contract or to complete the Work as contemplated.

(5) At the time of the bid opening, all bidders and subcontractors, domestic and foreign, must be in compliance with New York State business registration requirements. Contact the NYS Department of State regarding compliance.

Section 8 Submission of Post-Bid Information

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

a. Evidence of a completed New York State Uniform Contracting Questionnaire (Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)). Email confirmation that the bidder's CCA-2 is current and certified in the New York State VendRep System (VendRep) within the last six months from the bid date or, if not enrolled in VendRep, deliver a certified paper format CCA-2, including all attachments, to the Fund.

The Fund recommends that vendors file the required CCA-2 online via the VendRep. To enroll in and use the VendRep, see the VendRep Instructions at http://www.osc.state.ny.us/vendrep/vendor_index.htm or go directly to the VendRep o https://onlineservices.osc.state.ny.us/Enrollment/login?0. To request assistance, contact the Office of the State Comptroller's ("OSC") Help

Desk at 866-370-4672 or 518- 408-4672 or by email at ciohelpdesk@osc.state.ny.us.

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

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

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

b. Not used.

c. The names and addresses of the bidder's proposed subcontractor for the Asbestos Abatement and/or hazardous material removal work of any value, and proposed subcontractors for Electrical Work, the Heating, Ventilating and Air-Conditioning Work and the Plumbing Work for each of said work categories valued at $20,000 or more.

i. For each proposed subcontractor named, provide a completed “List of Completed Similar Construction Projects (the List).” If the List is not provided or is missing information, and/or is found to have erroneous information or information that is no longer current, a proposed subcontractor may be rejected. If requested by the Fund, the bidder may be permitted to add missing information, modify and/or explain erroneous information or information that is no longer current on the List; modifications and/or explanations of the List must be received promptly after receipt of the Fund’s request.
ii. Only one proposed subcontractor should be named for each of such trades. Proposed subcontractors of the bidder may not be changed except with the specific written approval of the Fund.
iii. The naming of the bidder itself for any of such work is not acceptable and may result in rejection of the bidder unless the bidder can demonstrate to the Fund that it has successfully completed or substantially completed two (2) 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 two (2) contracts at least 50% in similar size, scope and complexity for the designated work within the last five (5)

years. The determination of relevant contract experience in terms of size, scope and complexity will be at the sole discretion of the Fund as described in Section 7(1)c above.

v. For each of the proposed subcontractors, the bidders must submit to the Fund, seven (7) calendar days after the bid opening, evidence of a completed New York State Uniform Contracting Questionnaire (Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)). Either email confirmation that the subcontractor's CCA-2 is current and certified in the New York State VendRep System (VendRep) within the last six months from the bid date, or deliver a certified paper format CCA-2, including all attachments, to the Fund. Paper format CCA-2 will not be accepted from a proposed subcontractor who is enrolled in VendRep.

vi. In the event that the Fund and the Consultant reject any of said proposed subcontractors or the bidder itself for any of such subcontract work, the bidder, within two (2) working days after receipt of notification of such rejection, shall again submit to the Fund and the Consultant the name of another proposed subcontractor in place of the one rejected and it will be required to establish to the satisfaction of the Fund and the Consultant the reliability and responsibility of said proposed subcontractor. When naming another proposed subcontractor, the bidder must promptly submit the proposed subcontractor's completed "List of Completed Similar Construction Projects" and evidence of their completed CCA-2.

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

viii. Proposed subcontractors of the bidder, approved by the Fund and the Consultant, must be used on the work for which they were proposed and approved, and they may not be changed except with the specific written approval of the Fund.

c. A breakdown of the amount of the bidder's Proposal. Such breakdown shall be prepared in accordance with the format included herein as Appendix "A". No bidder shall be barred from revising, in the Contract breakdown required under the provisions of Section 4.08 of the Agreement, the various amounts listed in the bid breakdown required under the provisions of this Section. The amount set forth in said bid breakdown will not be considered as fixing the basis for additions to or deductions from the Contract consideration.

(2) Within seven (7) calendar days after the opening of bids, the three low bidders shall submit to the Fund for its approval a Service-Disabled Veteran-Owned Businesses Utilization Plan. The three lowest bidders will receive an email containing instructions and a hyperlink to follow to complete their Utilization Plan electronically via the Fund's online Utilization Plan application. Utilization Plans will only be accepted in this online format; any other form submittals will be rejected. The Utilization Plan shall include the subcontractor/supplier description of work,

the estimated work schedule, and the estimated dollar value of subcontracts and supply contracts that will be awarded to Service-Disabled Veteran-Owned Businesses.

(3) Except for Contracts of $100,000 or less, and unless otherwise directed by the Fund, within seven (7) calendar days after the opening of bids, the three low bidders shall submit to the Fund for its approval, a Minority and Women-owned Business Enterprise Utilization Plan. The three lowest bidders will receive an email containing instructions and a hyperlink to follow to complete their Utilization Plan electronically via the Fund's online Utilization Plan application. Utilization Plans will only be accepted in this online format; any other form submittals will be rejected. The Utilization Plan shall include the subcontractor/supplier description of work, the estimated work schedule, and the estimated dollar value of subcontracts and supply contracts that will be awarded to Minority and Women-owned Business Enterprises. The Utilization Plan should include the description of work and the estimated dollar value of subcontracts and supply contracts that will be awarded to Minority and Women-owned Business Enterprises.

(4) Except for contracts of $100,000 or less, within seven (7) calendar days after the opening of bids, the three low bidders shall submit to the Fund for its approval, an Equal Employment Opportunity Statement.

(5) Within seven (7) calendar days after the opening of bids, submit a working plan and schedule showing the bidder's sequence logic for all significant activities and phases of the work from the anticipated start date to the substantial completion date in the bidder's Proposal. Use suitable charts, diagrams or bar graphs and show clearly, in sequence and timescale, all significant activities and phases with time estimates for each. If requested, revise the working plan and schedule until they are satisfactory to the Fund and the Consultant. This requirement is in addition to and not a substitute for the schedule requirements of Section 10 paragraph 1(c) herein or Section 3.02 (Time Progress Schedule) of the Agreement. Although the working plan and schedule submitted shall not be used in determining the lowest responsible bidder, failure to submit or revise the working plan and schedule may result in the rejection of the Proposal as not responsive.

(6) The above information and such other information as the Fund or the Consultant may request or obtain will be used by the Fund in determining the reliability and responsibility of the bidder and any proposed subcontractors. Each bidder must comply promptly with all requests by the Fund and the Consultant for information and must actively cooperate with the Fund and the Consultant in their efforts to determine the qualifications of the bidder and any proposed subcontractors. Failure to comply with the latter may result in the rejection of the Proposal as not responsive. All information required to be furnished to the Fund under this Section shall be sent to the State University Construction Fund, Director of Capital Procurement, H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246 or emailed to the Fund at SUCF.ConstructionBids@suny.edu unless a signed original is required to be submitted.

Section 9 Award of Contract

(1) The award of the Contract shall be made to the bidder submitting the lowest Total Bid that is responsive to the solicitation and who, in the sole opinion of the Fund, is qualified to perform the work involved and is responsible and reliable.

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

(3) The right is reserved, if, in the Fund's judgment, the public interest will be promoted thereby, to reject any or all Proposals, to waive any informality in any Proposal received or to afford any bidder an opportunity to remedy any deficiency resulting from a minor informality or irregularity. Without limiting the generality of the foregoing:

a. A Proposal may be rejected as not responsive if the bidder fails to furnish the required bid security or to submit the information and/or data required with its Proposal and by this Information for Bidders.

b. A Proposal may be rejected as not responsive if the bidder cannot show to the satisfaction of the Fund: (i) that it has the necessary qualifications and capital; or (ii) that it owns, controls or can procure the necessary plant and equipment to commence the work at the time prescribed in the Contract and thereafter to prosecute and complete the work at the rate, or within the time specified; or (iii) that it is not already obligated by the performance of so much other work as is likely to delay the commencement, prosecution or completion of the work contemplated by the Contract.

c. A Proposal will be rejected as not responsive if it does not provide for the completion of the work by the date of completion specified in the Proposal.

(4) The Fund also expressly reserves the right to reject any Proposal as not responsive if, in its opinion, considering the work to be performed, the facts, as to the bidder's past performance on completed contracts, business or technical organization, plant, financial and other sources of business experience compared with the work bid upon, justify rejection.

(5) The award of the Contract shall not be construed as a guarantee by the Fund that the plant, equipment and the general scheme of operations and other information and/or data submitted by the bidder with or after its Proposal is either adequate or suitable for the satisfactory performance of the work. As a condition of the award, the bidder agrees to preserve all estimates and documentation used to develop its Bid Proposal and produce the latter information for the Fund's examination upon notice from the Fund prior to the Fund’s approval of the Final Payment application required by the Contract.

Section 10 Required Bonds and Insurance

(1) Unless otherwise agreed to by the Fund, within ten (10) working days after the receipt of Notice of Award, the Contractor shall procure, execute and deliver to the Fund and maintain, at its own cost and expense:

a. A Performance Bond and a Labor and Material Bond, both of which Bonds shall be on the form prescribed by the Fund and in an amount not less than 100 percent of the total amount of the Contract awarded to the Contractor by the Fund. Said Bonds must be issued by a surety company approved by the Fund and authorized to do business in the State of New York as a surety. Attorneys-in-fact who execute said Bonds on behalf of a surety must affix thereto a certified and effectively dated copy of their power of appointment.
b. Proof of insurances with the specific coverage and limits required in Article V of the Agreement. Acceptable documents are:

    i. Proof of NYS Worker's Compensation is only accepted on the C-105.2 or U-26.3 form.

    ii. Proof of Disability insurance is only accepted on the DB-120.1 form.

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

    http://www.osc.state.ny.us/agencies/guide/MyWebHelp/Content/XI/18/G.htm

    iii. All other proof of insurance must be on the appropriate Certificate of Liability Insurance Acord form, as well as the Acord 855, or other form acceptable to the Fund.

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

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

(1) New York State Law

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

(2) Business Participation Opportunities for MWBEs

a. For purposes of this solicitation, the Fund hereby establishes goals (see Section 01 26 43 Amendments (Section E) of the General Requirements for goals) for New York State-certified Minority-owned Business Enterprise ("MBE") participation and for New York State-certified Women-owned Business Enterprise ("WBE") participation (based on the current availability of MBEs and WBEs). A contractor ("Contractor") on any contract resulting from this

procurement ("Contract") must document its good faith efforts to provide meaningful participation by MWBEs as subcontractors and suppliers in the performance of the Contract. To that end, by submitting a bid, the bidder agrees that the Fund may withhold payment pursuant to any Contract awarded as a result of this bid pending receipt of the required MWBE documentation. A directory of MWBEs can be viewed at: https://ny.newnycontracts.com. For guidance on how the Fund will evaluate a Contractor's "good faith efforts," refer to 5 NYCRR § 142.8 and Article VI, Section 6.03(2)d of the Agreement.

b. The bidder understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR § 140.1, may be applied towards the achievement of the applicable MWBE participation goal. The portion of a contract with an MWBE serving as a supplier that shall be deemed to represent the commercially useful function performed by the MWBE shall be 60 percent of the total value of the contract. The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be the monetary value for fees, or the markup percentage, charged by the MWBE.
c. In accordance with 5 NYCRR § 142.13, the bidder further acknowledges that if it is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in a Contract resulting from this RFP, such finding constitutes a breach of contract and the Fund may withhold payment as liquidated damages.
d. Such liquidated damages shall be calculated as an amount equaling the difference between: (1) all sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and (2) all sums actually paid to MWBEs for work performed or materials supplied under the Contract.
e. By submitting a bid or proposal, a bidder agrees to demonstrate its good faith efforts to achieve the applicable MWBE participation goals by submitting evidence thereof in a format prescribed by the Fund.
f. Additionally, a bidder will be required to submit the following information as evidence of compliance with the foregoing:

    i. An MWBE Utilization Plan in accordance with paragraph (3) of the above Section 8 Submission of Post Bid Information. Any modifications or changes to an accepted MWBE Utilization Plan after the Contract award and during the term of the Contract must be revised via the online Utilization Plan application and submitted to the Fund for review and approval. Business Partners can modify their Utilization Plans by visiting the Fund's website and following the instructions for the online Utilization Plan application.
    ii. The Fund will review the submitted MWBE Utilization Plan and advise the bidder of the Fund's acceptance or issue a notice of deficiency within 20 calendar days of receipt.
    iii. If a notice of deficiency is issued, the bidder will be required to respond to the notice of deficiency within seven (7) business days of receipt by submitting to the Fund a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by the Fund to be inadequate, the Fund shall notify the bidder within five (5) business days and direct them accordingly. Failure to cooperate with

the Fund in a timely manner may be grounds for disqualification of the bid or proposal.

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

   i. If a bidder fails to submit an MWBE Utilization Plan;
   ii. If a bidder fails to submit a written remedy to a notice of deficiency;
   iii. If a bidder fails to cooperate with the Fund; or
   iv. If the Fund determines that the bidder has failed to document good faith efforts.

h. The successful bidder will be required to attempt to utilize, in good faith, any MBE or WBE identified within its MWBE Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to Contract Award may be made at any time during the term of the Contract to the Fund, but must be made no later than prior to the submission of a request for final payment on the Contract.
i. Over the term of the Contract, the successful bidder will be required to submit to the Fund a monthly MWBE Contractor Compliance & Payment Reporting in the electronic format prescribed by the Fund, documenting the progress made toward achievement of the MWBE goals of the Contract.

(3) Equal Employment Opportunity Requirements

a. By submission of a bid in response to this solicitation, the bidder agrees with all of the terms and conditions of Schedule “A” - Provisions Required to Be Inserted by Law, including Clause 11 - Equal Employment Opportunities for Minorities and Women. The bidder is required to ensure that it and any subcontractors awarded a subcontract for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work"), except where the Work is for the beneficial use of the bidder, undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.
b. The bidder will be required to submit an Equal Employment Opportunity Policy Statement in accordance with paragraph (4) of the above Section 8 Submission of Post Bid Information.
c. If awarded a Contract, bidder shall submit a Monthly Employment Utilization Report and shall require each of its subcontractors to submit a Monthly Employment Utilization Report in the electronic format prescribed by the Fund during the term of the Contract.

d. Further, pursuant to Article 15 of the Executive Law (the "Human Rights Law") and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, gender identity or expression, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

(4) Reports, Records and Documentation

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

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

(1) New York State Law

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

a. New York State Veterans' Services Law Article 3 acknowledges that SDVOBs strongly contribute to the economies of the State and the nation. As defenders of our nation and in recognition of their economic activity in doing business in New York State, bidders are strongly encouraged and expected to consider SDVOBs in the fulfillment of the requirements of the project. Such partnering may be as subcontractors, subconsultants, suppliers, protégés or other supporting roles. SDVOBs can be readily identified on the directory of certified businesses at https://sdves.ogs.ny.gov/business-search

b. Bidders are strongly encouraged to the maximum extent practical and consistent with legal requirements of the State Finance Law and the Executive Law, to use responsible and responsive SDVOBs as subcontractors to provide meaningful participation. Furthermore, bidders are reminded that they must continue to also utilize small, minority and women-owned businesses consistent with Article 15-A of Executive Law. Utilizing SDVOBs in State contracts will help create more private sector jobs, rebuild New York State's infrastructure, and maximize economic activity to the mutual benefit of the bidder and its SDVOB partners. SDVOBs will promote the bidder's optimal performance under any potential agreements, thereby fully benefiting the public sector programs that are supported by associated public procurements.

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

(2) Business Participation Opportunities for SDVOBs

a. For purposes of this solicitation, the Fund hereby establishes goals (see Section 01 26 43 Amendments (Section E) of the General Requirements for goals) for New York State-certified Service-Disabled Veteran-Owned Businesses (SDVOB) (based on the current availability of SDVOBs).

A contractor ("Contractor") on any contract resulting from this procurement ("Contract") must document its good faith efforts to provide meaningful participation by SDVOBs as subcontractors and suppliers in the performance of the Contract. To that end, by submitting a bid, the bidder agrees that the Fund may withhold payment pursuant to any Contract awarded as a result of this bid pending receipt of the required SDVOB documentation. A directory of SDVOBs can be viewed at: https://sdves.ogs.ny.gov/business-search. For guidance on how the Fund will evaluate a Contractor's "good faith efforts," refer to 9 NYCRR § 252.2 and Article IX, of the Agreement.

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

c. In accordance with 9 NYCRR § 252.2 (s), the bidder further acknowledges that if it is found to have willfully and intentionally failed to comply with the SDVOB participation goals set forth in a Contract resulting from this RFP,

such finding constitutes a breach of contract, and the Fund may withhold payment as liquidated damages.

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

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

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

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

   ii. The Fund will review the submitted SDVOB Utilization Plan and advise the bidder of the Fund's acceptance or issue a notice of deficiency within 20 calendar days of receipt.

   iii. If a notice of deficiency is issued, the bidder will be required to respond to the notice of deficiency within seven (7) business days of its receipt by submitting to the Fund a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by the Fund to be inadequate, such a failure to remedy the deficiency may be grounds for disqualification of the bid or proposal for non-responsiveness or the Fund may notify the bidder and request the bidder submit a waiver form within five (5) business days.

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

   i. If a bidder fails to submit an acceptable SDVOB Utilization Plan;
   ii. If a bidder fails to submit a timely written remedy to a notice of deficiency;

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

h. A bidder is further subject to disqualification if:

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

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

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

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

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

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

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

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

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

Section 14 Single Contract Responsibility

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

Section 15 Examination of Site

A pre-bid conference and project walk-through will be held with all bidders, subcontractors and other plan holders at the time and place specified in Section 00 25 13 Pre-Bid Meetings. No individual or additional walk-throughs will be provided. Failure to attend a walk-through shall not be the cause for extra payment. If the walk-through in Section 00 25 13 Pre-Bid Meetings is mandatory, the Fund expressly reserves the right to reject any Proposal as not responsive if the bidder failed to attend the mandatory walk-through.

Section 16 Procurement Lobbying Law Restrictions

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

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

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

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

The bidder agrees it is responsible for complying with any and all health and safety requirements issued by federal, state or local entities, including but not limited to New York State Governor Office Executive Orders, New York State Department of Health rules, regulations and guidance, and other New York State, Fund or Campus laws, rules, regulations or requirements that exist or may be issued and/or amended during the bidding and/or performance of work on this Project. Bidder affirms that all costs and time associated with compliance of these health and safety requirements, including Emergency Regulations, are included in its bid. The current NYS Emergency Regulations and Guidance are available at the following website:

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

Notwithstanding the foregoing, bidder agrees to comply with the Emergency Regulations, Guidance, and Campus Rules and Regulations as it may be amended or superseded in the future. Bidder shall comply with Section 2.03 of the Contract regarding any claims or disputes stemming from such health and safety requirements.

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SUNY State University Construction Fund

MWBE/SDVOB
UTILIZATION PLAN INSTRUCTIONS

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

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

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

SUNY State University Construction Fund

MWBE/SDVOB
UTILIZATION PLAN INSTRUCTIONS

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

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

Section 00 25 13 Pre-Bid Meetings

A pre-bid conference and project walk-through will be held on November 12, 2026 from 10:00AM – 12:00PM, with all Bidders assembled at the Couper Administration Building, Conference Room 606. No individual or additional walk-throughs may be performed during the bid preparation time period. Vehicle parking must comply with campus regulations. Failure to attend a walk-through shall not be the cause for extra payment.

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

The pre-bid meeting shall be chaired by the Consultant with the following as the minimum agenda (Hold questions on scope until item 5 below):

1. Confirm that bidders have a full bid package including any addenda issued to date.
2. Review 00 21 13 20 Information for Bidders in its entirety.
3. 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
4. See Section 12 of the Information for Bidders for participation by Service-Disabled Veteran-Owned Businesses. The SDVOB goal for this project is 3%
5. 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
6. Review the timetable for submitting questions and issuing addenda.
7. 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.
8. Advise bidders that no changes to the Contract Documents are binding unless included in an addendum. Verbal comments are not binding.
9. 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.

10. 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.

11. Other items:

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

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

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

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

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

c. If the Fund issues a Notice of Award and the bidder doesn't provide acceptable insurance, then the Fund may rescind the award and take other actions to which it is entitled. All resulting costs and time delay are solely the responsibility of the bidder.

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

e. Starting December 30, 2024 all contractors and subcontractors submitting bids or performing construction work on public work projects or private projects covered

under Article 8 of the Labor Law are required to register with the New York State Department of Labor (NYSDOL) under Labor law Section 220-i.

For more information or to register, please visit:

https://dol.ny.gov/contractor-and-subcontractor-landing

12. Have a question-and-answer session.

13. Tour the site and existing conditions.

_____
NAME OF BIDDER

_____
ADDRESS OF BIDDER

00 42 13 **PROPOSAL FOR SUCF PROJECT NO. 071108-00**

Replace Roofs – Administration and Health Services Buildings

State University of New York at Binghamton

TO THE STATE UNIVERSITY CONSTRUCTION FUND:

1. The Bidder agrees that it shall complete all work within 610 calendar days from receipt of the Notice to Proceed.

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

2. The bidder hereby declares that it has carefully examined all Bidding and Contract Documents and that it has inspected the actual location of the work, together with the local sources of supply, has satisfied itself as to all the quantities and conditions, and understands that in signing this Proposal, it waives all right to plead any misunderstanding regarding the same.

3. The bidder further understands and agrees that it is to do, perform and complete all work in accordance with the Contract Documents and to accept in full compensation therefor the amount of the TOTAL BID, modified by such additive or deductive alternates, if any, as are accepted by the Fund.

4. The bidder further agrees to accept the unit prices, if any, set forth in paragraph (5) hereof, except as the same may be modified pursuant to the provisions of Section 5 of the Information to Bidders, as full payment for any deletions, additions, modifications or changes to the portion or portions of work covered by said unit prices.

5. a. **BID CALCULATION:**

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

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

   (2) Field Order Allowance: Schedule III and Section 4.05A of the Agreement
   One Hundred Fifty-Five Thousand Six Hundred Dollars $ 155,600.00
   (In words) (In figures)

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

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

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

Alternate Number	Add/ Deduct	Amount In Words	Amount In Figures

NONE

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

Work or Materials Description	Amount in Words	Amount in Figures

NONE

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

Work or Materials Description	Amount in Words	Amount in Figures

NONE

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

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

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

7. The bidder agrees that if awarded the Contract, it will commence work upon receipt of the Notice to Proceed and that it will fully complete the work by the date stated or within the duration herein, as applicable.

8. The bidder acknowledges the receipt of the following addenda, but agrees that it is bound by all addenda whether or not listed herein.

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

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

   a. Solicited bids, in a timely and adequate manner, from New York State Business Enterprises including certified Minority and Women's owned Business Enterprises, or

   b. Contacted the New York State Department of Economic Development to obtain listings of New York State Business Enterprises, or

   c. Placed notices for subcontractors and suppliers in newspapers, journals and other trade publications distributed in New York State, or

   d. Participated in bidder outreach conferences.

   e. If the bidder determines that New York State Business Enterprises are not available to participate on the Contract as subcontractors or suppliers, the bidder shall provide a statement indicating the method by which such determination was made.

   f. If the bidder does not intend to use subcontractors on the Contract, the bidder shall provide a statement verifying such intent.

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

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

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

    (1) execute and deliver an Agreement in the form provided herein; or

    (2) execute and deliver a Performance Bond and a Labor and Material Bond in the amounts required and in the form prescribed; or

    (3) provide proof of insurances required in Article V of the Agreement; or

    (4) provide the 120-day Schedule required by the General Requirements, Special Conditions paragraph 01 32 16, titled "Project Schedule;"

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

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

11. The bidder certifies that all wood products that are to be used in the performance of this Contract shall be in accordance with the Specifications and provisions of Section 167 b. of the State Finance Law which Section prohibits the purchase and use of tropical hardwoods.

12. The bidder affirms that it understands and agrees to comply with the procedures of the Fund relative to permissible contacts as required by Sections 139-j(3) and 139-j-(6)(b) of the State Finance Law.

13. The bidder certifies that all information provided or to be provided to the Fund in connection with this procurement is, as required by Section 139-k of the State Finance Law, complete, true and accurate.

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

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

Title_____

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

Firm's NYS SFS Vendor Identification Number _____

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

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

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

THE POST OFFICE ADDRESS OF THE BIDDER

_____

_____

_____

Telephone No._____ Email Address_____

If a Corporation

Name Address

_____ , PRESIDENT _____

_____, SECRETARY _____

_____, TREASURER _____

If a Partnership

Name of Partners Address

_____ _____

_____ _____

_____ _____

If a Joint Venture

Name of Members Address

_____ _____

_____ _____

_____ _____

If an Individual

Name of Individual Address

_____ _____

If a Limited Liability Corporation

Name Address

_____ _____

_____ _____

_____ _____

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

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

_____
Address:
_____

_____
Name and Title of Person Submitting this Form:

_____

_____

SUCF Project Number: _____ Date: _____

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

2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law Section139-j: ☐No ☐ Yes
3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity? ☐No ☐Yes

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

Governmental Entity: _____
Date of Finding of Non-Responsibility: _____
Basis of Finding of Non-Responsibility: _____
_____
_____
_____
(Add additional pages as necessary)

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

6. If yes, please provide details below.
Governmental Entity: _____
Date of Termination or Withholding of Contract: _____
Basis of Termination or Withholding: _____
_____
_____
_____
_____
_____
(Add additional pages as necessary)

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

By: _____ _____
Signature Date

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

IRAN ENERGY SECTOR DIVESTMENT COMPLIANCE

Printed Name of Entity Seeking to Enter into the Contract:

_____

Address:

_____

Printed Name and Title of Person Executing Certification:

_____

SUCF Project Number: _____

Pursuant to New York State Finance Law §165-a, Iran Divestment Act of 2012 (Act), the Office of General Services is required to post on its web site a list of persons who have been determined to engage in investment activities in Iran ("prohibited entities list"), as defined by the Act. New York State Public Authorities Law § 2879-c, with certain exceptions, prohibits the Fund from entering into or awarding a Contract with persons identified on the prohibited entities list.

CERTIFICATION:

By submission of this bid or proposal, each person (as defined in paragraph (e) of subdivision one of section one hundred sixty five-a of the state finance law) and each person signing on behalf of any other party certifies, and in the case of a joint bid or proposal or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the State finance law.

STATE OF)
)ss.:
COUNTY OF)

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

Signature of Person Executing
Certification:_____

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

_____

Notary Public

Submit form with original signatures

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

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

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

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

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

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

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

_____
signature

STATE OF)
) ss.:
COUNTY OF)

On this _____day of _____, 20___ , before me personally came

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

_____
Notary Public

Submit form with original signatures

ENCOURAGING USE OF NEW YORK STATE BUSINESSES IN CONTRACT PERFORMANCE

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

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

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

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

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

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

SUCF Project Number: _____

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

_____

_____

_____

_____

_____

(Attach additional identifying information with the bid as required)

By: _____ Date: _____
Signature

Print Name and Title: _____

Contractor Name: _____

Contractor Address: _____

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

EO 177 Certification

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

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

Generally, the Human Rights Law applies to:

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

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

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

Contractor Name: _____

By: _____ Date: _____
Signature

Print Name and Title: _____

Attachment A – List of Completed Similar Construction Projects

SUCF PROJECT # 071108-00 **BIDDER**

Form Completed By: Date:	Email: Phone Number:

Project #1 Title	Award Date	Contract Amount	Date Completed
Project Description Related to IFB Requirements			
Agency/Owner & Contact Person	Contact Information - Telephone No. & Email Address		
Were you the prime contractor on this project	Was the contract single bid		
Project #2 Title	Award Date	Contract Amount	Date Completed
Project Description Related to IFB Requirements			
Agency/Owner & Contact Person	Contact Information - Telephone No. & Email Address		
Were you the prime contractor on this project	Was the contract single bid		

APPENDIX A

For SUCF Project No. 071108-00

BID BREAKDOWN

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

	DIVISION OR SECTION	**AMOUNT**
1.	Division 1 - General Requirements	$ _____
2.	Division 2 - Asbestos Abatement	$ _____
3.	All other Division 2 work	$ _____
4	Division 4 - Masonry	$ _____
5.	Division 5 - Metals	$ _____
6.	Division 6 – Wood, Plastics and Composites	$ _____
7.	Division 7 – Thermal & Moisture Protection	$ _____
8.	Division 8 - Openings	$ _____
9.	Division 9 - Finishes	$ _____
10.	Division 10 -Specialties	$ _____
11.	HVAC	$ _____
12	Plumbing	$ _____
13.	Electrical	$ _____
14.	Sum of all lines above (**Base Bid)**	$ _____
15.	Field Order Allowance	$ 155,600.00
	Total Bid	$ _____

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

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

☐ Yes ☐ No

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

_____

Name of Contractor

BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that

, having an office at

(hereinafter called the "Principal") and the

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

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

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

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

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

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

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

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

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

_____
Principal

_____
By

(If Corporation, affix corporate seal)

_____
Surety

_____
By

(If Corporation, affix corporate seal)

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

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

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

_____
Notary Public

(ACKNOWLEDGEMENT BY CORPORATION)

STATE OF NEW YORK)
COUNTY OF) SS:

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

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

_____
Notary Public
;

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF)
) ss.:
COUNTY OF)

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

_____, to me known who, being by me

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

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

_____
Notary Public

00 43 13 10 INSTRUCTIONS FOR EXECUTION OF BID BOND

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

1. Name of Principal.

1a. Address of Principal.

2. Surety name, address *(Note: Must be authorized to do business in NYS as surety).*

3. Surety's State of incorporation.

4. Surety's principal office.

5. Amount of bid security *(in words and figures* **OR** *"5% of amount of bid").*

6. Correct project designation, including SUCF Project No.

7. "Attorney-in-Fact" *(or other authorized representative)* of Surety.

8. Execution date of Bond.

9. Name of Principal.

10. Original signature of Principal's officer (if corporation); partner (if partnership); or individual owner (facsimile or stamped signature not acceptable). *Note: If Principal's signatory is <u>not</u> a corporate officer, such other authorized representative's capacity to execute the Bond on behalf of Principal must be shown by a duly executed document reflecting the grant of such authority, e.g. by a copy of the appropriate Resolution of the Board of Directors of Principal).*

11. Corporate seal of Principal (if a corporation).

12. Name of Surety.

13. Original signature of Surety's Attorney-in-Fact (or other authorized representative). *Note: Facsimile or stamped signature not acceptable.*

14. Corporate seal of Surety. *Note: If the Bond is executed by <u>joint venture</u>, each member of the joint venture must affix its appropriate name, signature, seal, etc., as listed above. Changes, additions, or deletions in the text of the Fund's Bond form are not acceptable.*

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

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

BID BOND

BOND NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, that

-1-

, having an office at

-1a-

(hereinafter called the "Principal") and the

-2-

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

-4-

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

-5-

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

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

-6-

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

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

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

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

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

-9-

_____
Principal

-10-

_____
By

(If Corporation, affix corporate seal) **-11-**

-12-

_____
Surety

-13-

_____
By

(If Corporation, affix corporate seal) **-14-**

INSTRUCTIONS FOR EXECUTION OF ACKNOWLEDGMENTS

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

Acknowledgment by Individual Principal:

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

Acknowledgment by Corporate Principal:

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

Acknowledgment By Surety:

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

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

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

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

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

-7-
Notary Public

-8-

(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)

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

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

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

-10-
Notary Public

-11-

(ACKNOWLEDGMENT BY SURETY COMPANY)

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

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

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

-10-
Notary Public

State University Construction Fund
AGREEMENT

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

hereinafter referred to as the "Contractor".

WITNESSETH:

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

SUCF Project:

at the

in strict accordance with the Contract Documents;

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

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

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

dollars

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

Article I
General Provisions

Section 1.01 **Definitions**

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

Allowance	Any and all work and materials which may be required of the Contractor in performing work set forth under one or more allowances to this Contract shall be Work, as defined herein, which shall be performed in accordance with the base schedule for the performance of the Contractor's Work. Contractor shall not be entitled to an extension of time for the performance of an allowance or all allowances.
Consultant	The Architect or Engineer named in the Notice to Bidders or such other person or firm designated by the Fund to provide general administration of the Contract and inspection of the work.
Bidding Documents	Notice to Bidders, Information for Bidders and Proposals
Bonds	Performance Bond and Labor and Material Bond
Delay	For purposes of this document and as used herein and in any other contract documents between the Contractor and the Fund the word "delay" shall be interpreted broadly and shall include by way of example only and not by way of limitation: delay, disruption, interference, inefficiencies, impedance, hindrance, acceleration, resequencing, schedule impacts, lack of timeliness by the Fund and/or Consultant, and lack of coordination, cumulative impact of multiple change orders, delay and other impacts.
Contract or Contract	The Agreement, Bonds, Specifications, Project Manual, Drawings, Addenda

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

Section 1.02 Captions

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

Section 1.03 Nomenclature

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

Section 1.04 Entire Agreement

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

Section 1.05 Successors and Assigns

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

Section 1.06 Accuracy and Completeness of Contract Documents

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

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

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

Section 1.07 Organization of Contract Documents

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

Section 1.08 Furnishing of Contract Documents

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

Section 1.09 Examination of Contract Documents and Site

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

Section 1.10 Invalid Provisions

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

Section 1.11 No Collusion or Fraud

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

Section 1.12 Notices

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

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

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

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

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

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

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

Section 1.13 Singular-Plural; Male-Female

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

Article II
Contract Administration and Conduct

Section 2.01 Consultant's Status

(1) The Consultant, as the Fund's representative, shall provide general administration of the Contract and inspection of the work. The Consultant will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and it will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. The Consultant's duties, services and work shall in no way supersede or dilute the Contractor's obligation to perform the work in conformance with all Contract requirements, but it is empowered by the Fund to act on its behalf with respect to the proper execution of the work and to give instructions and/or direction when necessary to require such corrective measures as may be necessary, in its professional opinion, to insure the proper execution of the Contract or to otherwise protect the Fund's interest.

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

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

Section 2.02 Finality of Decisions

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

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

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

Section 2.03 Claims and Disputes

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

a. Promptly comply with such order;

b. Notwithstanding the provisions of Section 1.12 of the Agreement and any other provisions of the Contract documents to the contrary, file with the Fund and the Consultant, within five (5) working days after being ordered to perform the work claimed by it to be extra work or within five (5) working days after commencing performance of the extra work, whichever date shall be the earlier, or within five (5) working days after the said action or omission on the part of the Fund or the Consultant occurred, a written notice of the basis of its claim and request a determination thereof,

c. Notwithstanding the provisions of Section 1.12 of the Agreement and any other provisions of the Contract documents to the contrary, file with the Fund and the Consultant, within thirty (30) calendar days after said alleged extra work was required to be performed or said alleged extra work was commenced, whichever date shall be the earlier, or said alleged action or omission by the Fund or the Consultant occurred, a verified detailed statement, with documentary evidence, of the items and basis of its claim, including an initial and updated detailed Time Progress Schedule,

d. Produce for the Fund's examination, upon notice from the Fund, such information and documentation as directed by the Fund, which shall include but not be limited to job cost reports and all estimates and documentation used to develop the Bid Proposal, all its books of account, bills, invoices, payrolls, subcontracts, time books, progress records, daily reports, bank deposit books, bank statements, checkbooks and cancelled checks, showing all of its actions and transactions in connection with or relating to or arising by reason of its claim, and submit persons in its employment and in its subcontractors' employment for examination under oath by any person designated by the Fund to investigate any claims made against the Fund under the Contract, such examination to be made at the offices of the Contractor; and

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

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

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

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

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

Section 2.04 Omitted Work

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

Section 2.05 Extra Work

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

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

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

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

Section 2.06 Contractor to Give Personal Attention

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

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

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

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 cancel-lation of such orders and subcontracts;

d. Transfer title and deliver to the Fund, in accordance with the direction of the Fund, all materials, supplies, work in process, facilities, equipment, machines or tools produced as a part of or acquired by the Contractor in connection with the work terminated by said notice, and all plans, Drawings, Working Drawings, sketches,

Specifications and information for use in connection therewith; provided, however, that the Contractor may retain any of the foregoing if it so elects and foregoes reimbursement therefor;

e. Take such action as may be necessary or as the Consultant or the Fund may prescribe for the protection and preservation of all property in the possession or control of the Contractor in which the Fund, under the provisions of the Contract, has or may acquire an interest.

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

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

(5) Upon compliance by the Contractor with the foregoing provisions of this Section and subject to deductions for payments previously made, the Fund, for the portions of the work terminated, shall compensate the Contractor as follows:

a. By reimbursing the Contractor for actual expenditures made with respect to such work, including expenditures made in connection with any portion thereof which may have been completed prior to termination, as well as expenditures made after termination in completing those portions of the work covered by the Contract which the Contractor may have been required by the notice of termination to complete. The Fund shall determine the allowability and amount of such expenditures.

b. By reimbursing the Contractor for all actual expenditures made, with the prior written approval of the Fund or pursuant to a court judgment, in settling or discharging any outstanding contractual obligations or commitments incurred or entered into by the Contractor in good faith with respect to the Contract and resulting from the termination thereof.

c. By reimbursing the Contractor for all actual expenditures made after the effective date of the notice of termination resulting from or caused by the Contractor taking necessary action or action prescribed by the Consultant or the Fund for the protection and preservation of all property in the possession or control of the Contractor in which the Fund, under the provisions of the Contract, has or may acquire an interest.

d. By paying the Contractor a markup, which is to be calculated in the same manner as that provided for in subdivision c of paragraph (1) of Sections 4.02 and 4.05A for extra work, on the foregoing expenditures, which markup is to cover the Contractor's overhead and profit; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, said markup shall be reduced by one-third.

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

(7) Termination by the Fund under the provisions of this Section shall be without prejudice to any claims or rights which the Fund may have against the Contractor. The Fund may retain from the amount due to the Contractor under the provisions of this Section such monies as may be necessary to satisfy any claim which the Fund may have against the Contractor in connection with the Contract; provided, however, that the Fund's failure to retain such monies shall not be deemed a waiver of any of its rights or claims against the Contractor.

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

Article III
Time of Performance

Section 3.01 Commencement, Prosecution and Completion of Work

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

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

Section 3.02 Time Progress Schedule

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

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

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

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

Section 3.03 Time Progress Schedule for Shop Drawings and Samples

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

Section 3.04 Notice of Conditions Causing Delay

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

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

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

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

Section 3.05 Extension of Time

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

Contractor obtaining an extension of time for performance of any portion or all of its work.

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

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

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

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

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

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

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

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

Section 3.06 Contractor's Progress Reports

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

Article IV
Payment

Section 4.01 Compensation to Be Paid Contractor

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

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

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

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

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

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

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

(8) Not less than thirty days prior to the expiration date or renewal date, the Contractor shall supply the Fund with an updated replacement certificate of insurance and endorsements. The Contractor shall advise the Fund of any letter or notification that cancels, materially changes, or non-renews the policy and Contractor shall require the insurance carrier(s) to copy the Fund on any letter or notification that cancels, materially changes, or non-

renews the policy. Before the Contractor shall be entitled to have any progress payment rendered on account of the work which is to be insured pursuant to this Section, it shall furnish to the Fund a certificate in duplicate of the insurance herein required. Such insurance must be procured from an insurance carrier approved by the Fund, licensed to do business in the State of New York ("admitted" carrier), and rated at least "A-" by A.M. Best Company.

Section 5.08 Effect of Procurement of Insurance

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

Section 5.09 No Third Party Rights

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

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

Section 6.01 Definitions

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

Section 6.02 MWBE/EEO Policy Statement

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

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

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

(1) General Provisions

a. The Fund is required to implement the provisions of New York State Executive Law Article 15-A, 5 NYCRR Parts 140-145 of the New York Codes, Rules and Regulations ("NYCRR"), and Executive Order No. 162 dated January 9, 2017 ("E.O. 162") for all State contracts as defined therein, with a value (1) in excess of $25,000 for labor, services, equipment, materials, or any combination of the foregoing or (2) in excess of $100,000 for real property renovation and/or construction.

b. The Contractor agrees, in addition to any other nondiscrimination provision of the Contract and at no additional cost to the Fund, to fully comply and cooperate with the Fund in the implementation of New York State Executive Law Article 15-A, the regulations promulgated thereunder, and E.O. 162. These requirements include equal employment opportunities for minority group members and women ("EEO") and contracting opportunities for New York State certified minority and women-owned business enterprises ("MWBEs"). Contractor's demonstration of "good faith efforts" pursuant to 5 NYCRR §142.8 shall be a part of these requirements. These provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State Executive Law Article 15 (the "Human Rights Law") and other applicable federal, state or local laws.

c. Failure to comply with all of the requirements herein may result in a finding of non-

responsiveness, non-responsibility and/or a breach of contract, leading to the assessment of liquidated damages pursuant to Section 7 of this Article, withholding of funds and such other remedies as may be available to the Fund pursuant to the Contract and applicable law, including but not limited to bid rejection or contract termination for cause.

d. Contractor will include the provisions of this Article in each and every agreement, contract, and/or subcontract with each and every subcontractor and supplier in such a manner that the provisions of this Article will be binding upon each subcontractor and supplier as to work in connection with and related to this Agreement. All subcontractors and suppliers must be approved by the Fund and the MWBE Utilization plans are subject to approval by the Fund's Opportunities Program.

(2) Contract Goals

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

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

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

b. For purposes of providing meaningful participation by MWBEs on the Contract and achieving the MWBE Contract Goals established in Section 2a hereof, Contractor should reference the Directory of New York State Certified MWBEs found at the following internet address: https://www.ny.newnycontracts.com. Additionally, the Contractor is encouraged to contact the Fund's Opportunities Program Office. The Contractor can also reach out to the Division of Minority and Women's Business Development at (212) 803-2414 to discuss additional methods of maximizing participation by MWBEs on the Contract.

c. The Contractor understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR §140.1, may be applied towards the achievement of the applicable MWBE participation goal. The portion of a contract with an MWBE serving as a supplier, that shall be deemed to represent the commercially useful function performed by the MWBE, shall be 60 percent of the total value of the contract. The portion of a contract with an MWBE serving as a broker, that shall be deemed to represent the commercially useful function performed by the MWBE, shall be the monetary value for fees, or the markup percentage, charged by the MWBE.

d. Where MWBE Contract Goals have been established herein, the Contractor must document "good faith efforts" pursuant to pursuant to 5 NYCRR §142.8, to provide meaningful participation by MWBE's as subcontractors and suppliers, in the performance of the Contract. Such documentation shall include, but not necessarily be limited to:

i. Evidence of outreach to MWBEs,

ii. Any responses from MWBE's to the Contractor's outreach;

iii. Copies of advertisements for participation by MWBEs in appropriate general circulation, trade and minority or women-owned publications;

iv. The dates of attendance at any pre-bid, pre-award or other meetings, if any, scheduled by the Fund with MWBE's; and,

v. Information describing specific steps undertaken by the Contractor to reasonably structure the Contract Scope of work to maximize opportunities for MWBE participation.

(3) Equal Employment Opportunity (EEO)

a. The provisions of Article 15-A of the Executive Law, the rules and regulations promulgated thereunder, and E.O. 162 pertaining to equal employment opportunities for minority group members and women, shall apply to the Contract. Contractor agrees to be bound by them. In the event of any conflict, the provisions of the statute, regulations and Executive Order shall govern over any contrary provisions of this Agreement.

b. In performing the Contract, the Contractor shall:

i. Ensure that the Contractor and each contractor and subcontractor performing work on the Contract shall undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, EEO shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

ii. Within seven (7) calendar days after the opening of bids or upon receipt of a request by the Fund, the Contractor shall have submitted an EEO policy statement to the Fund.

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

iv. The Contractor’s EEO policy statement shall include the following language:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force.

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

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

(d) The Contractor will include the provisions of paragraphs a through c of this subdivision (iv) and paragraph e of this subsection 3 which provides for relevant provisions of the Human Rights Law, in every subcontract in such a manner that the requirements of the subdivision will be binding upon each subcontractor as to work in connection with the Contract.

c. Staffing Plan

To ensure compliance with E.O.162, in connection with all low bids in excess of $250,000, the Contractor shall, as a required condition of contract award, prepare and submit a staffing plan, as part of the Contractor’s bid or proposal, or within a reasonable time after the bid opening or proposal submission and prior to final contract award, as directed by the Fund. The Contractor shall do so using the staffing plan form provided by the Fund, to document the composition of the proposed workforce to be utilized in the performance of the Contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories.

d. Monthly Workforce Utilization/Gross Wages

Report

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

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

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

e. Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Contractor and sub-contractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

(4) MWBE Utilization Plan

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

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

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

(5) Waivers

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

If the Fund, upon review of the MWBE Utilization Plan, the reports described in Section 6.04, or any other relevant information, determines that the Contractor is failing or refusing to comply with the MWBE Contract Goals, and no waiver has been issued in regards to such non-compliance, the Fund may issue a notice of deficiency to the Contractor. The Contractor must respond to the notice of deficiency within seven (7) business days of receipt. Such response may include a request for partial or total waiver of MWBE Contract Goals.

(6) Liquidated Damages

a. Where the Fund determines that Contractor is not in compliance with the provisions of this Article and the Contractor refuses to comply with such requirements, or if the Contractor is found to have willfully and intentionally failed to comply with the MWBE Contract Goals, Contractor shall be obligated to pay liquidated damages to the Fund.

b. Such liquidated damages shall be calculated as an amount equaling the difference between:

i. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and

ii. All sums actually paid to MWBEs for work performed or materials supplied under the Contract.

c. In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by the Fund, Contractor shall pay such liquidated damages to the Fund within sixty (60) days after they are assessed. Provided, however, that if the Contractor has filed a complaint with the Director of the Division of Minority and Woman Business Development pursuant to 5 NYCRR § 142.12, liquidated damages shall be payable only in the event of a determination adverse to the Contractor following the complaint process.

Section 6.04 Reports, Records and Documentation

a. The Contractor shall, for each and every real property renovation and/or construction contract in excess of $100,000, file with the Fund monthly reports in the electronic form prescribed by the Fund, regarding actions taken pursuant to this Article, as well as a list of and value of subcontracts and supply contracts.

b. The Contractor shall permit access to its books, records and accounts by the Fund for purposes of investigation to ascertain compliance with the provisions of this Article. The Contractor shall include this provision in every subcontract so that such provision will be binding upon each subcontractor.

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

Article VII
Provisions Required by Law

Section 7.01 Provisions Deemed Inserted

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

Section 7.02 Wage Rates

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

Section 7.03 Iran Energy Sector Divestment

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

to the best of its knowledge and belief that each person is not on the prohibited entities list.

Article VIII
Vendor Responsibility

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

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

(3) Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate Fund officials or staff, the Contractor may be terminated by the Fund at the Contractor's expense where the Contractor is determined by the Fund to be non-responsible. In such event, the Fund may complete the contractual requirements in any manner that the Fund may deem advisable and pursue available legal or equitable remedies for breach.

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

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

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

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

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

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

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

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

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

(5) For the purposes of this Agreement, the Fund hereby establishes the goal of % participation for SDVOBs. For the purposes of providing meaningful

participation by SDVOBs on the Agreement and achieving the Agreement Goal, the Contractor should reference the directory of New York State Certified SDVOBs at the following internet address:

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

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

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

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

STATE UNIVERSITY CONSTRUCTION FUND

By _____

Title _____

Name _____

(COMPANY NAME)

By _____

Date: _____

SUCF Project No. ( )

If Corporation, affix Corporate Seal

Contract No. DXXXXXX

ACKNOWLEDGMENTS

(ACKNOWLEDGMENT BY INDIVIDUAL)

STATE OF)
COUNTY OF) SS:

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

_____, to me known and known to me to be the

person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

_____
Notary Public

(ACKNOWLEDGMENT BY PARTNERSHIP)

STATE OF)
COUNTY OF) SS:

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

_____, to me known and known to me to be the

person who executed the above instrument, who, being duly sworn by me, did for h self depose and say that he is a

member of the firm of _____ consisting of h self and
_____

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

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

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

_____
Notary Public

(ACKNOWLEDGEMENT BY CORPORATION)

STATE OF)
COUNTY OF) SS:

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

_____, to me known, who, being by me duly sworn, did depose

and say that he/she/they reside(s) in _____; that he/she/they is (are) the

_____ (president or other officer or director or attorney in fact duly appointed) of the

_____ (name of corporation), the corporation described in and which executed

the above instrument; and that he/she/they signed his/her/their name(s) thereto by authority of the board of directors of said

corporation.

_____
Notary Public

State University Construction Fund 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 Fund or the State and the Fund and the State shall bear no liability, until it has been approved by the State Comptroller or the pertinent pre-audit reviw period has elapsed without State Comptroller approval or rejection and such contracts are filed in his or her office.

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

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

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

6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the Fund of any Fund approved sums due and owing for work done upon the project.

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

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

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

10. RECORDS. The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, the "Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the Fund and any other agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The Fund shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i)

the Contractor shall timely inform an appropriate Fund official, in writing, that said Records should not be disclosed; and (ii) said Records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's or the Fund's right to discovery in any pending or future litigation.

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

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

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

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

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

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

Contractor will include the provisions of "a," "b," and "c" above, in every subcontract over $25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State and the Fund shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this clause. The Fund shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, the Fund shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

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

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

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law. For the purposes of Article 11-A of the State Finance law, the Controller's Office of the State University Construction Fund, whose mailing address is the H. Carl McCall SUNY Building, 353 Broadway, Albany, New York 12246, is the Fund's designated payment office.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

25. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.
To the extent this agreement is a contract as defined by Tax Law § 5-a, if the contractor fails to make the certification required by Tax Law § 5-a or if during the term of the contract, the Department of Taxation and Finance or the Fund discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the contract, if the Fund determines that such action is in the best interests of the State.

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

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

During the term of the Contract, should the Fund receive information that a person (as defined in State Finance Law § 165-a) is in violation of the above-referenced certifications, the Fund will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the Fund shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.
The Fund reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

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

SCHEDULE I Unit Prices

Refer to Section 4.04 of the Agreement for additional information.

Work or Material Description	Amount in Words	Amount in Figures

SCHEDULE II Allowance(s)

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

Work or Material Description	Amount in Words	Amount in Figures

SCHEDULE III Field Order Allowance

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

_____ _____

(in words) (in figures)

State University Construction Fund

Insurance Requirements
Schedule A

Project: 071071 - 00- Roof Replacement - Fine Arts and Anderson Center
Contract Type: Construction - Full Service

All certificate(s) of Insurance/Acord 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	5,000,000	5,000,000	5,000,000	General Aggregate limit must apply per project.	Accord 25 and Certificate of Liability Addendum Acord 855
Automobile	1,000,000				
Builder's Risk	To Be Determined				State University Construction Fund, the contractor, and its subcontractors to be added a Named Insured.

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

State University Construction Fund

Insurance Requirements
Schedule A

Project: 071071 - 00- Roof Replacement - Fine Arts and Anderson Center
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.
- Acord forms must be emailed directly by the agent or carrier.
- Email certificates and other insurance related correspondence to sucf.insurance@suny.edu.
- Include in the subject line the SUCF contract number or project number.
- Please do not mail additional copies to the Fund.

Report Notes:

LABOR AND MATERIAL BOND

KNOW ALL PERSONS BY THESE PRESENTS, that

(hereinafter called the "Principal") and

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

dollars ($)

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

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

day of , 20 ,

with the Fund for the

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

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

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

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

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

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

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

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

day of ,20 .

_____
Principal

By _____

(If Corporation, affix corporate seal)

_____
Surety

By _____

(If Corporation, affix corporate seal)

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that

(hereinafter called the "Principal") and

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

dollars ($)

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

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

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

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

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

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

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

_____
Principal

By _____

(If Corporation, affix corporate seal)

_____
Surety

By _____

(If Corporation, affix corporate seal)

ACKNOWLEDGMENTS FOR BONDS

(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

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

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

_____
Notary Public

(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)

STATE OF)
) ss.:
COUNTY OF)

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

_____, to me known who, being by me

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

that he is the _____of the

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

_____
Notary Public

(ACKNOWLEDGMENT BY SURETY COMPANY)

STATE OF)
) ss.:
COUNTY OF)

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

_____, to me known who, being by me

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

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

_____
Notary Public

00 73 43 Wage Rate Requirements

Wage Rates and Supplements

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

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

https://dol.ny.gov/

Kathy Hochul, Governor

Roberta Reardon, Commissioner

State Univ Construction Fund

James Trevvett
Bell & Spina, PC
215 Wyoming St
Syracuse NY 13204

Schedule Year 2026 through 2027
Date Requested 08/31/2026
PRC# 2026025657

Location Binghamton University
Project ID# 071108
Project Type Roof replacement, abatement of ACM/PCB sealants, structural overbuild, some deck replacement, brick masonry, skylight replacements, replacement of some rooftop mechanical equipment, window sill

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 Rate Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2026 through June 2027. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

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

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

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

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

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

Introduction

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

Contractor Registry

Effective December 30, 2024 all contractors and subcontractors submitting bids or performing construction work on public work projects, or private projects covered by Article 8 of the Labor Law, are required to register with the New York State Department of Labor (NYSDOL) under Labor Law Section 220-i. To register, contractors and subcontractors must submit an application through NYSDOL's Contractor Registry portal which is available through the agency's Management System for Protecting Worker Rights (MPWR) https://mpwr-public.labor.ny.gov/en/login.

For additional information, please visit online.

Responsibilities of the Department of Jurisdiction

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

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

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

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

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

Hours

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

Wages and Supplements

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

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

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

www.labor.ny.gov.

Payrolls and Payroll Records

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

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

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

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

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

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

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

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

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

Withholding of Payments

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

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

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

Summary of Notice Posting Requirements

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

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

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

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

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

Apprentices

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

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

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

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

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

Interest and Penalties

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

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

Debarment

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

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

Criminal Sanctions

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

Discrimination

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

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

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

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

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

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

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

Workers' Compensation

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

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

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

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

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

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

Unemployment Insurance

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

Kathy Hochul, Governor

Roberta Reardon, Commissioner

State Univ Construction Fund

James Trevvett
Bell & Spina, PC
215 Wyoming St
Syracuse NY 13204

Schedule Year 2026 through 2027
Date Requested 08/31/2026
PRC# 2026025657

Location Binghamton University
Project ID# 071108
Project Type Roof replacement, abatement of ACM/PCB sealants, structural overbuild, some deck replacement, brick masonry, skylight replacements, replacement of some rooftop mechanical equipment, window sill

Notice of Contract Award

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

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

Contractor Information
All information must be supplied

Federal Employer Identification Number: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Amount of Contract: $_____

Approximate Starting Date: ____/____/____

Approximate Completion Date: ____/____/____

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

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

Social Security Numbers on Certified Payrolls:

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

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

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

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

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

Effective June 23, 2020

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

(12.20)

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

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

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1. Purpose and Scope:

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

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

2. Background and Statutory References:

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

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

3. Procedures and Agency Responsibilities:

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

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

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

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

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

Reports should contain the following information:

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

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

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

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

NEW YORK STATE OF OPPORTUNITY. Department of Labor

Required Notice under Article 25-B of the Labor Law

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

The law says that you are an employee unless:

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

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

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

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

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

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

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

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

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

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

Employer Name:

IA 999 (09/16)

WE ARE YOUR DOL

NEW YORK STATE Department of Labor

New York State Department of Labor
Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

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

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

Chapter 629 of the Labor Laws of 2007:

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

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

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

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

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

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

The Bureau will enforce the statute as follows:

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

Proof of completion may include but is not limited to:

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

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

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

WICKS

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

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

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

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

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

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

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

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.
Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.
Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.
Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

*Contractor Registry (LL 220-I):
Labor Law Section 220-i requires that contractors obtain a Contractor Registry certificate of registration prior to bidding on or commencing work on a public or private project subject to prevailing wage requirements. Subcontractors also are prohibited from commencing work on covered employment unless they have received a Contractor Registry certificate. Contractors are required to submit their Certificate of Registration with their bid materials. A public database is available online to confirm registration at data.ny.gov to confirm registration validity. For additional information on how to register and the requirements, visit https://dol.ny.gov/public-work-contractor-and-subcontractorregistry-
landing.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. Payrolls must be maintained for at least three (3) years from the projects date of completion. Additionally, as per Article 6 of the Labor Law, contractors and subcontractors are required to establish, maintain, and preserve for not less that 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.

Payroll records and transcripts are required to be kept on site during all the time that work under that contract is being performed.

NOTE: *For more detailed information regarding Article 9 prevailing wage contracts, please refer to "General Provisions of Laws Covering Workers on Article 9 Public Work Building Service Contracts".*

If you have any questions concerning the attached schedule or would like additional information, please write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12240

OR

Contact the nearest BUREAU of PUBLIC WORK District Office

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

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. 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. Please Note: Updates to the Wage Schedule shall be made on a quarterly basis.

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.

Shift Work

If the timeline of the contract requires shift work be performed to meet deadlines, the BPWE will enforce the shift work rate as the required rate on the project whether or not shift work is specifically addressed in the contract.

Paid Prenatal Leave

Every employer shall be required to provide to its employees twenty hours of paid prenatal personal leave during any fifty-two week calendar period. Paid prenatal personal leave shall mean leave taken for the health care services received by an employee during their pregnancy or related to such pregnancy, including physical examinations, medical procedures, monitoring and testing, and discussions with a healthcare provider related to the pregnancy. Paid prenatal personal leave may be taken in hourly increments. Benefits for paid prenatal personal leave shall be paid in hourly installments. Employees shall receive compensation at the employee's regular rate of pay, or the applicable minimum wage established by the labor law, whichever is greater, for the use of Paid Prenatal leave.

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

Broome County General Construction

Boilermaker — 08/01/2026

JOB DESCRIPTION Boilermaker **DISTRICT** 1

ENTIRE COUNTIES
Albany, Broome, Chenango, Columbia, Delaware, Essex, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

WAGES
Per hour

	07/01/2026	01/01/2027 Additional
Boilermaker	$ 45.84	$ 2.50*

*To be allocated at a later date

SUPPLEMENTAL BENEFITS
Per hour

Journeyworker	$ 26.51 + $1.49*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

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

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 25) on HOLIDAY PAGE
Note: When a holiday falls on Sunday, the day observed by the State or Nation shall be observed, and when Christmas Day and New Year's fall on Saturday, Friday will be observed as the holiday.

REGISTERED APPRENTICES
(1/2) year terms at the following percentage of Journeyworker's wage per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th
65%	65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 19.71 +1.49*	$ 19.71 +1.49*	$ 20.69 +1.49*	$ 21.64 +1.49*	$ 22.62 +1.49*	$ 23.60 +1.49*	$ 24.57 +1.49*	$ 25.53 +1.49*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

1-197

Broadband — 08/01/2026

JOB DESCRIPTION Broadband **DISTRICT** 4

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, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

PARTIAL COUNTIES
Orange: Only in the Village of Greenwood Lake, Village of Highland Falls, Town of Tuxedo, and Town of Patterson

WAGES
NOTE: Applies to all public work and covered private projects, including those receiving ConnectAll funding subject to New York State Labor Law §224-E, solicited on or after July 1,2025. For all other projects solicited prior to July 1,2025 please see LINEMAN ELECTRICIAN(1)-TELEDATA

Per Hour:	07/01/2026	08/04/2026
Field Tech Install/Repair*	$ 52.85	$ 54.44

For outside work (excluding installation on building construction/alteration/renovation projects), stopping at first point of attachment (demarcation), installing/maintaining/repairing broadband internet service.

"Broadband", "Broadband Service", or "Broadband Internet" means mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up internet access service.

*NOTE: EXCLUDES work within ten(10) feet of High Voltage (600 Volts and over) transmission lines. Please see LINEMAN rates.
*NOTE: Does not include the operation of equipment. Please see applicable OPERATING ENGINEER rates.
*NOTE: Does not include Groundmen/Flagger/Flagmen. Please see LABORER/LABORER-HEAVY/HIGHWAY rates.

SUPPLEMENTAL BENEFITS
Per Hour:

$ 23.24

OVERTIME PAY
See (B, K, *R) on OVERTIME PAGE
* Two and one half times the hourly rate after the 8th hour

HOLIDAY
Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

4-CWA-Dist2

Carpenter - Building 08/01/2026

JOB DESCRIPTION Carpenter - Building **DISTRICT** 2

ENTIRE COUNTIES
Broome, Tioga

WAGES

Per hour:	07/01/2026	07/01/2027 Additional	07/01/2028 Additional
Carpenter	$ 35.19	$ 4.00*	$ 3.00*
Floor Coverer	35.19	4.00*	3.00*
Carpet Layer	35.19	4.00*	3.00*
Dry-Wall	35.19	4.00*	3.00*
Diver-Wet Day	60.19	4.00*	3.00*
Diver -Dry Day	36.19	4.00*	3.00*
Diver Tender	36.19	4.00*	3.00*

*To be allocated at a later date

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):
- Pile Drivers/Dock Builders shall receive $0.25 per hour over the journeyworker's rate of pay when performing piledriving/dock building work.
- Certified welders shall receive $3.00 per hour over the journeyworker's rate of pay when the employee is required to be certified and performs DOT, AWS, or ABS specified welding work.
- When an employee performs work within a contaminated area on a State and/or Federally designated hazardous waste site, and where relevant State and/or Federal regulations require employees to be furnished and use or wear required forms of personal protection, then the employee shall receive their regular hourly rate plus $1.50 per hour.
- Depth pay for Divers based upon deepest depth on the day of the dive (per diem payment):
  0' to 80' no additional fee
  81'to 100' additional $.50 per foot
  101'to 150' additional $0.75 per foot
  151'and deeper additional $1.25 per foot
- Penetration pay for Divers based upon deepest penetration on the day of the dive (per diem payment):
  0' to 50' no additional fee
  51' to 100' additional $.75 per foot
  101' and deeper additional $1.00 per foot
- Diver rates applies to all hours worked on dive day.

SHIFT WORK
On Agency/Owner mandated shift work, the following rates will be applicable:
1st Shift - Regular Rate
2nd Shift - Premium of 10% of base wage per hour
3rd Shift - Premium of 15% of base wage per hour
Shift work shall be defined as implementing at least two (2) shifts in a twenty-four (24) consecutive hour period. Shift work must be for a minimum of three (3) consecutive days.

SUPPLEMENTAL BENEFITS
Per hour:

	07/01/2026
Journeyworker	$ 22.57

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

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
Note: Any holiday which occurs on Sunday shall be observed the following Monday. If Christmas falls on a Saturday, it shall be observed on the prior Friday.

REGISTERED APPRENTICES
Wages per hour (1300 hour terms at the following percentage of Journeyworker's base wage):

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental Benefits per hour:

$ 13.05	$ 13.05	$ 15.65	$ 15.65

NOTE ADDITIONAL AMOUNTS PAID TO APPRENTICES FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):
- Pile Driving/Dock Builder apprentices shall receive an additional $0.25 per hour worked when performing piledriving/dock building work.
- Certified Welders shall receive $3.00 per hour over the apprentices rate of pay when the apprentice is required to be certified and performs DOT, AWS or ABS specified welding work.
- When an apprentice performs work within a contaminated area on a State and/or Federally designated hazardous waste site, and where relevant State and/or Federal regulations require the apprentice to be furnished and use or wear required forms of personal protection, then the apprentice shall receive their regular hourly rate plus $1.50 per hour.

2-277B-Bro

Carpenter - Building / Heavy&Highway 08/01/2026

JOB DESCRIPTION Carpenter - Building / Heavy&Highway **DISTRICT** 2

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

PARTIAL COUNTIES
Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Wages per hour:	07/01/2026	07/01/2027 Additional
Carpenter - ONLY for Artificial Turf/Synthetic Sport Surface	$ 39.69	$ 2.25*

*To be allocated at a later date.

Note - Does not include the operation of equipment. Please see Operating Engineers rates.

SUPPLEMENTAL BENEFITS
Per hour worked:

Journeyworker	$ 27.84

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

HOLIDAY
Paid: See (5) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE
Notes:
When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. Whan a holiday falls upon a Sunday, it shall be observed on the following Monday.
An employee taking an unexcused day off the regularly scheduled day before or after a paid Holiday shall not receive Holiday pay.

REGISTERED APPRENTICES
Wages per hour (1300 hour terms at the following percentage of Journeyworker's wage):

1st	2nd	3rd	4th

65%	70%	75%	80%

Supplemental Benefits per hour worked:

$ 19.08	$ 19.69	$ 21.86	$ 22.47

2-42AtSS

Carpenter - Heavy&Highway **08/01/2026**

JOB DESCRIPTION Carpenter - Heavy&Highway **DISTRICT** 2

ENTIRE COUNTIES
Broome, Cayuga, Chemung, Cortland, Delaware, Jefferson, Lewis, Onondaga, Oswego, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Yates

WAGES

Per hour	07/01/2026	07/01/2027 Additional
Carpenter	$ 41.02	$ 4.42*
Piledriver	41.02	4.42*
Dockbuilder	41.02	4.42*
Diver-Wet Day	66.02	4.42*
Diver-Dry Day	42.02	4.42*
Diver-Tender	42.02	4.42*

*To be allocated at a later date.

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (per hour worked):
- State or Federal designated hazardous site, requiring protective gear shall be an additional $2.50 per hour.
- Certified welders when required to perform welding work will receive an additional $5.00 per hour.

ADDITIONAL NOTES PERTAINING TO DIVERS/TENDERS:
- Divers and Tenders shall receive one and one half (1 1/2) times their regular diver and tender rate of pay for Effluent and Slurry diving.
- Divers and tenders being paid at the specified rate for Effluent and Slurry diving shall have all overtime rates based on the specified rate plus the appropriate overtime rates (one and one half or two times the specified rate for Slurry and Effluent divers and tenders).
- The pilot of an ADS or submersible will receive one and one-half (1 1/2) times the Diver-Wet Day Rate for time submerged.
- All crew members aboard a submersible shall receive the Diver-Wet Day rate.
- Depth pay for Divers based upon deepest depth on the day of the dive (per diem payment):
  - 0' to 50' no additional fee
  - 51' to 100' additional $0.50 per foot
  - 101' to 150' additional $0.75 per foot
  - 151' to 200' additional $1.25 per foot
  - 201' and deeper additional $1.50 per foot
- Penetration pay for Divers based upon deepest penetration on the day of the dive (per diem payment):
  - 0' to 50' no additional fee
  - 51' to 100' additional $0.75 per foot
  - 101' to 200' additional $1.00 per foot
  - Over 201' additional $1.25 per foot
- Diver rates applies to all hours worked on dive day.

SHIFT WORK
When project owner mandates a single irregular work shift, the Journeyworkers and Apprentices will receive an additional $4.00 per hour. A single irregular work shift can start any time from 5:00 p.m. to 1:00 a.m.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 27.81

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

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
- In the event a Holiday falls on a Saturday, the Friday before will be observed as a Holiday. If a Holiday falls on a Sunday, then Monday will be observed as a Holiday.
- The employee must work their scheduled workday before and their scheduled workday after the holiday to receive holiday pay.

REGISTERED APPRENTICES
CARPENTER/PILEDRIVER/DOCKBUILDER APPRENTICES
Wages per hour (1300 hour terms at the following percentage of journeyworker's base wage):

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental Benefits per hour:

$ 19.05	$ 19.66	$ 21.78	$ 22.39

NOTE ADDITIONAL AMOUNTS PAID PER HOUR WORKED TO APPRENTICES FOR SPECIFIC TYPES OF WORK PERFORMED:
- State or Federal designated hazardous site, requiring protective gear shall be an additional $2.50 per hour.
- Certified welders when required to perform welding work will receive an additional $5.00 per hour.

2-277HH-Bro

Electrician 08/01/2026

JOB DESCRIPTION Electrician **DISTRICT** 2

ENTIRE COUNTIES
Broome

PARTIAL COUNTIES
Chenango: Entire County except the Townships of Columbus, New Berlin and Sherburne.
Delaware: Only the Townships of Davenport, Delhi, Deposit, Franklin, Hamden, Masonville, Meredith, Sidney, Tompkins and Walton Townships,and that portion of Colchester and Hancock Townships north of the east branch of the Delaware River.
Otsego: Only the Townships of Butternuts, Hartwick, Laurens, Maryland, Milford, Morris, Oneonta, Otego, Unadilla and Westford.
Tioga: Only the Townships of Berkshire, Newark Valley, Owego, Richford and Tioga.

WAGES

Per hour:	07/01/2026	06/01/2027 Additional	06/01/2028 Additional
Electrician (base wage)	$ 44.36	$3.31*	$3.86*
Cable Splicer	50.43	3.81*	4.36*

*To be allocated at a later date.

ADDITIONAL AMOUNTS FOR SPECIFIC TYPES OF JOBSITE CONDITIONS (amount subject to any overtime premiums):
Additional $ 0.50 per hour when required to work underground, such as in tunnels for roads, railroads, or water.
Additional $ 0.50 per hour when required to work at a height of 40 feet above the ground or roof level.

SHIFT WORK
When shift work is mandated in the job specifications or by the contracting agency, the following journeyworker hourly rates apply. The starting hours of a shift may be adjusted up to two (2) hours in order to meet the needs of the contracting agency.

Between the hours of 8:00AM and 4:30PM	$ 44.36
Between the hours of 4:30PM and 1:00AM	52.03
Between the hours of 12:30AM and 9:00AM	58.29

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 33.38 plus 3% of wage

OVERTIME PAY
See (B, *E, Q) on OVERTIME PAGE
*Double time after 8 hours on Saturday.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, *8, 16) on HOLIDAY PAGE
When a dated holiday falls on a Saturday it shall be celebrated on Friday. When a dated holiday falls on a Sunday, it shall be celebrated on Monday.
*Good Friday may be celebrated the following Monday by mutual agreement of Employer and Employees.

REGISTERED APPRENTICES
WAGES: Terms at the following percentages of Journeyworker's wage.

1st	2nd	3rd	4th	5th
0-2000 Hrs	2000-3500 Hrs	3500-5000 Hrs	5000-6500 Hrs	6500-8000 Hrs
46%	51%	59%	69%	79%

ADDITIONAL AMOUNTS FOR SPECIFIC TYPES OF JOBSITE CONDITIONS (amount subject to any overtime premiums):
Additional $ 0.50 per hour when required to work underground, such as in tunnels for roads, railroads, or water.
Additional $ 0.50 per hour when required to work at a height of 40 feet above the ground or roof level.

SUPPLEMENTAL BENEFITS per hour:
1st term $ 10.75 plus 3% of the hourly wage

2nd term	$ 28.72 plus 3% of the hourly wage
All other terms	$ 29.43 plus 3% of the hourly wage

2-325

Elevator Constructor — 08/01/2026

JOB DESCRIPTION Elevator Constructor **DISTRICT** 6

ENTIRE COUNTIES
Broome, Cayuga, Chenango, Cortland, Franklin, Jefferson, Lewis, Onondaga, Oswego, St. Lawrence, Tioga, Tompkins

PARTIAL COUNTIES
Delaware: Only the towns of: Tompkins, Walton, Masonville, Sidney, Franklin and Deposit.
Madison: Only the towns of: Cazenovia, DeRuyter, Eaton, Fenner, Georgetown, Lebanon, Lenox, Nelson and Sullivan.
Oneida: Only the towns of: Camden, Florence and Vienna.

WAGES

Per hour:	07/01/2026	01/01/2027
Mechanic	$ 60.99	$ 63.706
Mechanic Helper	42.69	44.594

SUPPLEMENTAL BENEFITS

Per hour:		
Journeyworker	$ 38.985*	39.535*

*NOTE: Add 6% of regular hourly rate for all hours worked. Add 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 holiday falls on a Saturday, it shall be observed on Friday. When a holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES
WAGES per hour: 1 year terms at the following percentage of the Elevator Constructor Mechanic wage.

0-6 months	6-12 months	2nd year	3rd year	4th year
50%	55%	65%	70%	80%

SUPPLEMENTAL BENEFITS per hour:

0-6 months: 6% of the regular hourly apprentice rate paid, no additional supplemental benefits.

All other terms: Same as Journeyworker

6-62.1

Glazier — 08/01/2026

JOB DESCRIPTION Glazier **DISTRICT** 5

ENTIRE COUNTIES
Broome, Chemung, Chenango, Delaware, Otsego, Schuyler, Steuben, Tioga, Tompkins

WAGES

Per hour:	07/01/2026
Glazier	$ 33.00

SUPPLEMENTAL BENEFITS

Per hour:	
Journeyworker	$ 34.15

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

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

REGISTERED APPRENTICES
1000 hour terms

Appr. 1st term	$ 21.00
Appr. 2nd term	22.00
Appr. 3rd term	23.00
Appr. 4th term	24.00
Appr. 5th term	25.00
Appr. 6th term	26.00
Appr. 7th term	27.00
Appr. 8th term	28.00

Supplemental Benefits per hour:

Appr. 1st term	$ 13.27
Appr. 2nd term	13.27
Appr. 3rd term	19.27
Appr. 4th term	19.27
Appr. 5th term	20.27
Appr. 6th term	20.27
Appr. 7th term	21.27
Appr. 8th term	21.27

5-677z3

Insulator - Heat & Frost — 08/01/2026

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT** 7

ENTIRE COUNTIES
Broome, Cayuga, Chemung, Chenango, Cortland, Herkimer, Jefferson, Lewis, Madison, Oneida, Onondaga, Oswego, Otsego, Schuyler, Seneca, St. Lawrence, Tioga, Tompkins

WAGES

Per hour:	07/01/2026	05/01/2027 Additional	05/01/2028 Additional	05/01/2029 Additional
ON MECHANICAL SYSTEMS ONLY:				
Asbestos Worker	$ 45.75	$ 4.50*	$ 4.75*	$ 6.25*
Insulation Installer	45.75	4.50*	4.75*	6.25*
Firestopping Worker	45.75	4.50*	4.75*	6.25*

* To be allocated at a later date.

SHIFT WORK
The following rates will apply on all contracting agency-mandated shifts worked:

1st Shift	$ 45.75
2nd Shift	52.61
3rd Shift	54.90

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 28.59

OVERTIME PAY
See (*B1, **K, P) on OVERTIME PAGE
*NOTE: First 10 hours on Saturday.
**NOTE: Holidays that fall on Sunday are subject to double time.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (2*,4,6,28) on HOLIDAY PAGE
	*Triple time for Labor Day if worked.

REGISTERED APPRENTICES
WAGES per hour: One (1) year terms at the following percentage of Journeyworker's wage.

1st	2nd	3rd	4th
60%	70%	80%	90%

SUPPLEMENTAL BENEFITS per hour:

$ 24.24	$ 24.24	$ 28.59	$ 28.59

7-30-Syracuse

Ironworker 08/01/2026

JOB DESCRIPTION Ironworker **DISTRICT** 6

ENTIRE COUNTIES
Broome, Cayuga, Cortland, Onondaga, Oswego, Seneca, Tioga, Tompkins

PARTIAL COUNTIES
Chenango: Only the townships of Afton, Bainbridge, Coventry, German, Greene, Guilford, Lincklaen, McDonough, Norwich, Otselic, Oxford, Pharsalia, Pitcher, Preston and Smithville.
Jefferson: Only the townships of Adams, Alexandria, Brownville, Cape Vincent, Clayton, Ellisburg, Henderson, Hounsfield, LeRay, Lorraine, Lyme, Orleans, Pamelia, Rodman, Rutland, Theresa, Watertown and Worth.
Madison: Only the townships of Cazenovia, DeRuyter, Fenner, Georgetown, Lenox, Lincoln, Nelson, Smithfield and Sullivan.
Schuyler: Only the townships of Cayuta, Catharine, Hector and Montour.
Wayne: Only the townships of Butler, Galen, Huron, Rose, Savannah and Wolcott.

WAGES
Structural, Reinforcing, Re-bar, Machinery Mover & Rigger, Ornamental & Curtain Wall, Window Wall, Pre-Glazed Metal Framed Windows Attached to Steel or Masonry Including Caulking, Fence Erector (Chain Link/Security), Sheeter/Bridge Rail, Pre-Cast Erector, Stone Derrickman, Pre-Engineered Building Erector, Welder

Per hour:	07/01/2026
Ironworker	$ 38.50

SHIFT WORK
Multiple shifts mandated by the project owner. All shifts will be eight (8) hours.

1st Shift	Regular wage rate
2nd Shift	Regular wage rate plus 10% - Starting times between 2 PM and 7 PM
3rd Shift	Regular wage rate plus 15% - Starting times between 7 PM and 12 AM

NOTE: When a single irregular shift is worked, with start times based on second or third shifts, add 10% to the 1st shift wage rate posted above.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 33.30

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

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: Any holiday which occurs on Saturday shall be observed on the preceding Friday. Any holiday which occurs on Sunday shall be observed the following Monday.

REGISTERED APPRENTICES
WAGES per hour: One year terms at the following rates.

1st	2nd	3rd	4th
$ 21.50	$ 23.50	$ 25.50	$ 27.50

SUPPLEMENTAL BENEFITS per hour:

1st year	$ 13.28
2nd year	21.82
3rd year	23.04
4th year	24.26

6-60

Laborer - Building 08/01/2026

JOB DESCRIPTION Laborer - Building **DISTRICT** 2

ENTIRE COUNTIES
Broome, Chemung, Cortland, Schuyler, Steuben, Tioga, Tompkins

PARTIAL COUNTIES
Chenango: Entire County except the Townships of Sherburne, Columbus and New Berlin.
Delaware: Only the Townships of Sidney, Masonville, Walton, Tompkins, Deposit, Hancock, and Colchester.

WAGES
Per hour:

GROUP #1: Basic Laborer - excavation, concrete vibrator, power-driven buggie, demolition (including acetylene torch work) that is customarily done by a laborer

GROUP #2: Air Tool Operators, Mason Tenders

GROUP #3: Blaster, Rock Drill (compressor driven)

GROUP #4: Asbestos, Hazardous, Toxic Waste, Lead and Mold Remediation

	07/01/2026
GROUP #1	$ 31.25
GROUP #2	32.25
GROUP #3	33.25
GROUP #4	33.25

IMPORTANT NOTES:
- Laborer tasks on Renewable Energy and Green Energy construction work shall be paid at the appropriate Heavy & Highway rates.
- Wage and supplement rates for the operation of forklift and skid steer may be found under the classification "Operating Engineer".

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 20.20

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

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
When a holiday falls on Sunday, it shall be observed on the following Monday.

REGISTERED APPRENTICES
WAGES: 1000 hour terms at the following percentage of Journeyworker's wage.

1st	2nd	3rd	4th
70%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

1st term	$ 15.85
2nd term	17.10
3rd term	17.98
4th term	18.85

2-785b

Laborer - Heavy&Highway **08/01/2026**

JOB DESCRIPTION Laborer - Heavy&Highway **DISTRICT** 2

ENTIRE COUNTIES
Broome, Chemung, Cortland, Schuyler, Steuben, Tioga, Tompkins

PARTIAL COUNTIES
Chenango: Entire County except the Townships of Sherburne, Columbus, and New Berlin.
Delaware: Only the Townships of Sidney, Masonville, Walton, Tompkins, Deposit, Hancock and Colchester.

WAGES
Per hour:

GROUP A: Drill Helper, Flagman, Outboard and Hand Boats.

GROUP B: Basic Rate, Bull Float (where used for strike off only), Chain Saw, Concrete Aggregate Bin, Concrete Bootmen, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of Steel Mesh, Small Generators for Laborers Tools, Installation of Bridge Drainage Pipe, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Water Pump Operators (1-1/2" & Single Diaphragm), Nozzle (Asphalt, Gunite, Seeding, and Sand Blasting), Laborers on Chain Link Fence Erection, Rock Splitter and Power Unit, Pusher Type Concrete Saw and all other Gas, Electric, and Air Tool Operators, Wrecking Laborer.

GROUP C: Drilling equipment - only where a separate air compressor unit supplies power, Acetylene Torch Operators, Asphalt Raker, Powder Man, Tail or Screw Operator on Asphalt Paver.

GROUP D: Blasters, Form Setters (slab steel forms on highways, roads, streets & airport runways), Stone or Granite Curb Setters.

GROUP E: Hazardous Waste defined as when an employee performs hazardous waste removal, lead abatement and removal, asbestos abatement and removal work on State and/or Federally designated waste site and were relevant State and/or Federal regulations require employees to use or wear required forms of personal protection.

	07/01/2026	07/01/2027 Additional
GROUP A	$ 39.80	$ 4.20*
GROUP B	40.00	4.20*
GROUP C	40.20	4.20*
GROUP D	40.40	4.20*
GROUP E	45.00	4.20*

*To be allocated at a later date.

IMPORTANT NOTES:
- Laborer tasks on Renewable Energy and Green Energy construction work shall be paid at the appropriate Heavy & Highway rates.
- Wage and supplement rates for the operation of forklift and skid steer may be found under the classification "Operating Engineer".
- When an employee is required by the employer and/or by the material data safety sheets of a product, during its application, to wear a half or full-face replaceable cartridge respirator for more than (2) hours, then in such case said employee(s) will be paid the Group E rate for the shift.

SHIFT WORK
A single irregular work shift starting any time between 5:00 PM and 1:00 AM on governmental mandated night work shall be paid an additional $5.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker $ 28.01

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

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
- If Holiday falls on Sunday, it will be celebrated on Monday. If the Holiday falls on Saturday, it will be celebrated on Saturday.
- An Employee must work the scheduled working day before and the scheduled working day after a holiday to receive holiday pay.

REGISTERED APPRENTICES
WAGES: 1000 hour terms at the following percentage of Journeyworker's GROUP B wage:

1st	2nd	3rd	4th
70%	80%	90%	95%

SUPPLEMENTAL BENEFITS per hour:
All terms $ 28.01

2-785h

Laborer - Tunnel 08/01/2026

JOB DESCRIPTION Laborer - Tunnel **DISTRICT** 2

ENTIRE COUNTIES
Broome, Chemung, Cortland, Schuyler, Steuben, Tioga, Tompkins

PARTIAL COUNTIES
Chenango: Entire County except the Townships of Sherburne, Columbus, and New Berlin.
Delaware: Only the Townships of Sidney, Masonville, Walton, Tompkins, Deposit, Hancock and Colchester.

WAGES
Per hour:

GROUP A: Change House Man

GROUP B: Miners and all Machine Men, Safety Miner, All Shaft work, Caisson work, Drilling, Blow Pipe, all Air Tools, Tugger, Scaling, Nipper, Guniting pot to nozzle, Bit Grinder, Signal Man (top and bottom), Concrete Man, Shield Driven Tunnels, mixed face and soft ground, liner plate tunnels in free air.

GROUP C: Blaster

GROUP D: Hazardous waste removal work on a State and/or Federally designated waste site where relevant State and/or Federal regulations require employees to use or wear required forms of personal protection.

	07/01/2026	07/01/2027 Additional
Group A	$ 42.98	$ 4.20*
Group B	43.18	4.20*
Group C	47.98	4.20*
Group D	47.98	4.20*

*To be allocated at a later date

IMPORTANT NOTES:
- When an employee is required by the employer and/or by the material data safety sheets of a product, during its application, to wear a half or full face replaceable cartridge respirator for more then (2) hours, then in such case said employee(s) will be paid the Group D rate for the shift.

SHIFT WORK
A single irregular work shift starting any time between 5:00 PM and 1:00 AM on governmental mandated night work shall be paid an additional $5.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker $ 28.01

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
- If Holiday falls on Sunday, it will be celebrated on Monday. If the Holiday falls on Saturday, it will be celebrated on Friday.

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
If the holiday falls on Saturday, it will be celebrated on Friday. If the holiday falls on Sunday, it will be celebrated on Monday

REGISTERED APPRENTICES
WAGES: 1000 hour terms at the following percentage of Group B wage

1st	2nd	3rd	4th
70%	80%	90%	95%

SUPPLEMENTAL BENEFITS per hour:

All Terms $ 28.01

2-785T

Lineman Electrician — 08/01/2026

JOB DESCRIPTION Lineman Electrician **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, Wyoming, Yates

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

Crane Operators: Operation of any type of crane on line projects.
Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on line projects.
Digging Machine Operator: All other digging equipment and augering on line projects.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines. Also includes digging of holes for poles, anchors, footer, and foundations for electrical equipment.

-----Below rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. Includes access matting for line work.

Per hour:	07/01/2026	05/03/2027	05/01/2028
Group A:			
Lineman, Technician	$ 64.37	$ 66.84	$ 69.47
Crane, Crawler Backhoe	64.37	66.84	69.47
Welder, Cable Splicer	64.37	66.84	69.47
Group B:			
Digging Mach. Operator	$ 57.93	$ 60.16	$ 62.52
Group C:			
Tractor Trailer Driver	$ 54.71	$ 56.81	$ 59.05
Groundman, Truck Driver	51.50	53.47	55.58
Equipment Mechanic	51.50	53.47	55.58
Group D:			
Flagger	$ 35.40	$ 36.76	$ 38.21

Additional 3% per hour above regular rate for entire crew when a helicopter is used. This will increase to 5% on May 03, 2027.

-----Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work." Includes access matting for line work.

Group A:			
Lineman, Technician	$ 64.37	$ 66.84	$ 69.47
Crane, Crawler Backhoe	64.37	66.84	69.47
Cable Splicer	70.81	73.52	76.42
Certified Welder, Pipe Type Cable	$ 67.59	$ 70.18	$ 72.94
Group B:			
Digging Mach. Operator	$ 57.93	$ 60.16	$ 62.52
Group C:			
Tractor Trailer Driver	$ 54.71	$ 56.81	$ 59.05
Groundman, Truck Driver	51.50	53.47	55.58
Equipment Mechanic	51.50	53.47	55.58
Group D:			
Flagger	$ 35.40	$ 36.76	$ 38.12

Additional 3% per hour above regular rate for entire crew when a helicopter is used. This will increase to 5% on May 03, 2027.

-----Below rates applicable on all railroad catenary installation and maintenance, third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. Includes access matting for line work.

Group A:			
Lineman, Tech, Welder	$ 65.81	$ 68.34	$ 71.03
Crane, Crawler Backhoe	65.81	68.34	71.03
Cable Splicer	72.39	75.17	78.13
Certified Welder, Pipe Type Cable	69.10	71.76	74.58

Group B:			
Digging Mach. Operator	$ 59.23	$ 61.51	$ 63.93
Group C:			
Tractor Trailer Driver	$ 55.94	$ 58.09	$ 60.38
Groundman, Truck Driver	52.65	54.67	56.82
Equipment Mechanic	52.65	54.67	56.82
Group D:			
Flagger	$ 36.20	$ 37.59	$ 39.07

Additional 3% per hour above regular rate for entire crew when a helicopter is used. This will increase to 5% on May 03, 2027.

-----Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. Includes access matting for line work.

Group A:			
Lineman, Tech, Welder	$ 67.10	$ 69.68	$ 72.43
Crane, Crawler Backhoe	67.10	69.68	72.43
Group B:			
Digging Mach. Operator	$ 60.39	$ 62.71	$ 65.19
Group C:			
Tractor Trailer Driver	$ 57.04	$ 59.23	$ 61.57
Groundman, Truck Driver	53.68	55.74	57.94
Equipment Mechanic	53.68	55.74	57.94
Group D:			
Flagger	$ 36.91	$ 38.32	$ 39.84

Additional 3% per hour above regular rate for entire crew when a helicopter is used. This will increase to 5% on May 03, 2027.

SHIFT WORK

The following rates will apply on all contracting agency mandated multiple shifts of at least five (5) days duration worked between the hours listed below:

1ST SHIFT	8:00 AM to 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM to 1:00 AM REGULAR RATE PLUS 17.3 %
3RD SHIFT	12:30 AM to 9:00 AM REGULAR RATE PLUS 31.4 %

SUPPLEMENTAL BENEFITS

Per hour:

	07/01/2026	05/03/2027	05/01/2028
Group A	$ 32.91*	$ 34.41*	$ 35.91*
Group B	$ 28.91*	$ 30.41*	$ 31.91*
Group C	$ 28.51*	$ 29.71*	$ 30.91*
Group D	$ 28.41*	$ 29.54*	$ 30.67*

*NOTE: Plus 7% of the hourly wage paid. The 7% is based on the straight time rate or the premium time rate.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. NOTE: Double time for all emergency work designated by the Contracting Agency.
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, 15, 25) on HOLIDAY PAGE
Overtime	See (5, 6, 8, 15, 25) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

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

SUPPLEMENTAL BENEFITS per hour:

	07/01/2026	05/03/2027	05/01/2028
All terms:	$ 28.41*	$ 29.54*	$ 30.67*

*NOTE: Plus 7% of the hourly wage paid. The 7% is based on the straight time rate or the premium time rate.

6-1249a

Lineman Electrician - Teledata — 08/01/2026

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
NOTE: Applies to all public work and covered private projects, including those receiving ConnectAll funding subject to LL 224-E,solicited prior to July 1, 2025. For all projects, excluding dial-up internet access service, solicited on or after July 1, 2025, please see BROADBAND

Per hour:	07/01/2026	01/04/2027	01/03/2028	01/01/2029
Cable Splicer	$ 42.03	$ 43.30	$ 44.59	$ 45.93
Installer, Repairman	39.89	41.09	42.32	43.59
Teledata Lineman	39.89	41.09	42.32	43.59
Tech., Equip. Operator	39.89	41.09	42.32	43.59
Groundman/Flagger	21.14	21.78	22.43	23.10

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

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work, please see LINEMAN.

SHIFT WORK
The following rates apply when the contracting agency mandates multiple shifts of at least five (5) days duration are worked. When two (2) or three (3) shifts are worked the following rates apply:

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

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 6.18 plus 4%*	$ 6.43 plus 5%*	$ 6.43 plus 6%*	$ 6.68 plus 7%*

*NOTE: The percentage (%) listed above is based on the hourly wage paid, straight time rate or premium time rate.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

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

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting — 08/01/2026

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

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

WAGES

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

Crane Operators: Operation of any type of crane on Traffic Signal/Lighting projects.
Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on Traffic Signal/Lighting projects.
Digging Machine Operator: All other digging equipment and augering on Traffic Signal/Lighting projects.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.

Per hour:	07/01/2026	05/03/2027	05/01/2028
Group A:			
Lineman, Technician	$ 55.31	$ 57.40	$ 59.64
Crane, Crawler Backhoe	55.31	57.40	59.64
Certified Welder	58.08	60.27	62.62
Group B:			
Digging Machine	$ 49.78	$ 51.66	$ 53.68
Group C:			
Tractor Trailer Driver	$ 47.01	$ 48.79	$ 50.69
Groundman, Truck Driver	44.25	45.92	47.71
Equipment Mechanic	44.25	45.92	47.71
Group D:			
Flagger	$ 33.19	$ 34.44	$ 35.78

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

SHIFT WORK

The following rates will apply on all contracting agency mandated multiple shifts of at least five (5) days duration worked between the hours listed below:

1ST SHIFT	8:00 AM TO 4:30 PM	REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM	REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM	REGULAR RATE PLUS 31.4%

SUPPLEMENTAL BENEFITS

Per hour:

	07/01/2026	05/03/2027	05/01/2028
Group A	$ 32.91*	$ 34.41*	$ 35.91*
Group B	$ 28.91*	$ 30.41*	$ 31.91*
Group C	$ 28.51*	$ 29.71*	$ 30.91*
Group D	$ 28.41*	$ 29.54*	$ 30.67*

*NOTE: Plus 7% of the hourly wage paid. The 7% is based on the straight time rate or the premium time rate.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE.
NOTE: Double time for all emergency work designated by the Contracting Agency.
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, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25) on HOLIDAY PAGE

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

REGISTERED APPRENTICES
WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

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

SUPPLEMENTAL BENEFITS per hour:

	07/01/2026	05/03/2027	05/01/2028
All terms:	$ 28.41*	$ 29.54*	$ 30.67*

*NOTE: Plus 7% of the hourly wage paid. The 7% is based on the straight time rate or the premium time rate.

6-1249a-LT

Lineman Electrician - Tree Trimmer — 08/01/2026

JOB DESCRIPTION Lineman Electrician - Tree Trimmer **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, Wyoming, Yates

WAGES
Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also includes stump removal near underground energized electrical lines including telephone and CATV lines.

Per hour:	07/01/2026	01/01/2027	01/03/2027
Tree Trimmer	$ 34.67	$ 34.67	$ 36.23
Equipment Operator	30.67	30.67	32.05
Equipment Mechanic	30.67	30.67	32.05
Truck Driver	24.93	24.93	26.05
Groundman	20.53	20.53	21.45
Flagger	16.20	16.20*	16.93

* This rate may be subject to a minimum wage increase 01/01/2027.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 11.23*	$ 11.48*	$ 11.48*

*NOTE: Plus 4.5% of the hourly wage paid. The 4.5% is based on the straight time rate or the premium time rate.

OVERTIME PAY
See (B, E, Q, X) on OVERTIME PAGE
WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY
Paid: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE
NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday. All paid holidays falling on a Sunday shall be observed on the following Monday.

6-1249TT

Mason - Building — 08/01/2026

JOB DESCRIPTION Mason - Building **DISTRICT** 5

ENTIRE COUNTIES
Broome, Chenango, Delaware, Otsego, Tioga

WAGES
Per hour: 07/01/2026

Building:

Bricklayer, Cement	$ 36.34
Mason, Plasterer, Stone	
Mason, Tuck Pointer	

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 31.26

OVERTIME PAY
See (B,E,E2*,Q) on OVERTIME PAGE
*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

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

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following rates:

1st	2nd	3rd	4th
$ 22.99	$ 28.44	$ 29.82	$ 32.71

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 24.52	$ 25.75	$ 28.84	$ 30.42

5-3B - Bing - Z2

Mason - Heavy&Highway 08/01/2026

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT** 5

ENTIRE COUNTIES
Allegany, Broome, Chautauqua, Chemung, Chenango, Cortland, Delaware, Genesee, Livingston, Monroe, Ontario, Orleans, Otsego, Schuyler, Seneca, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

PARTIAL COUNTIES
Cattaraugus: Enitre county except in the Township of Perrysburg and the Village of Gowanda only the Bricklayer classification applies.
Erie: Only the Bricklayer classification applies.
Niagara: Only the Bricklayer classification applies.

WAGES
Per hour: 07/01/2026
Heavy & Highway:

Cement Mason	$ 41.38
Bricklayer	41.38

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 27.03

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

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

REGISTERED APPRENTICES
Wages per hour:

1500 hour terms at the following percentage of Journeyworker's wage:

1st	2nd	3rd	4th
50%	60%	70%	80%

Supplemental benefits per hour:

1st term	$ 15.78
2nd term	$ 25.07

3rd term	$ 25.56
4th term	$ 26.05

5-3h

Mason - Tile Finisher — 08/01/2026

JOB DESCRIPTION Mason - Tile Finisher **DISTRICT** 5

ENTIRE COUNTIES
Broome, Chemung, Chenango, Cortland, Delaware, Otsego, Schuyler, Steuben, Tioga, Tompkins

PARTIAL COUNTIES
Allegany: Towns of Alfred, Almond, Andover and Burns in Allegany County

WAGES

Wages	
Per hour:	07/01/2026
Building:	
Marble, Slate, Terrazzo and Tile Finisher	$ 35.00

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 24.47

OVERTIME PAY
See (B,E,E2*,Q) on OVERTIME PAGE
*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY

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

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following wage:

1st	2nd	3rd
$ 21.00	$ 24.50	$ 28.00

Supplemental benefits per hour:

1st	2nd	3rd
$ 15.69	$ 16.39	$ 21.13

5-3TF - Z4

Mason - Tile Setter — 08/01/2026

JOB DESCRIPTION Mason - Tile Setter **DISTRICT** 5

ENTIRE COUNTIES
Broome, Chemung, Chenango, Cortland, Delaware, Otsego, Schuyler, Steuben, Tioga, Tompkins

PARTIAL COUNTIES
Allegany: Towns of Alfred, Almond, Andover and Burns.

WAGES

Wages	
Per Hour:	07/01/2026
Building:	
Marble, Slate, Terrazzo and Tile Setter	$ 36.69

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 28.56

OVERTIME PAY
See (B,E,E2*,Q) on OVERTIME PAGE
*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

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

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following wage:

1st	2nd	3rd	4th
$ 22.01	$ 25.68	$ 29.35	$ 33.02

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 16.49	$ 17.31	$ 26.90	$ 27.73

5-3TS - Z4

Millwright 08/01/2026

JOB DESCRIPTION Millwright **DISTRICT** 6

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

WAGES
THE FOLLOWING RATE APPLIES TO ANY GAS/STEAM TURBINE AND OR RELATED COMPONENT WORK, INCLUDING NEW INSTALLATIONS OR MAINTENANCE AND ANY/ALL WORK PERFORMED WITHIN THE PROPERTY LIMITS OF A NUCLEAR FACILITY.

Per hour:	07/01/2026	07/01/2027 Additional	07/01/2028 Additional
Millwright - Power Generation	$ 50.00	$ 3.00*	$ 3.00*

* To be allocated at a later date.

NOTE: ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):
- Certified Welders shall receive an additional $ 1.75 per hour provided they are directed to weld.
- If a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) is required, then that employee shall receive an additional $ 1.50 per hour.
- An employee performing the work of a machinist shall receive an additional $ 2.00 per hour. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional $ 1.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour paid:

Journeyworker	$ 28.45*

*NOTE: Subject to OT premium

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

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

REGISTERED APPRENTICES
WAGES per hour: One year terms at the following percentage of Journeyworker's wage:

Appr. 1st year	65%*
Appr. 2nd year	75%*
Appr. 3rd year	80%*
Appr. 4th year	90%*

*NOTE: Additional premium for the following work listed below:

Certified Welder	$ 1.75
Hazardous Waste Work	1.50
Machinist	2.00
Underground (500' and below)	1.00

SUPPLEMENTAL BENEFITS per hour:

Appr. 1st year	$ 11.96
Appr. 2nd year	23.50
Appr. 3rd year	25.15
Appr. 4th year	26.80

6-1163Power

Millwright 08/01/2026

JOB DESCRIPTION Millwright **DISTRICT** 6

ENTIRE COUNTIES
Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Herkimer, Madison, Seneca, Tioga, Yates

WAGES

Per hour:	07/01/2026	07/01/2027 Additional	07/01/2028 Additional
Building	$ 40.50	$ 3.50*	$ 3.50*
Heavy & Highway	44.00		

* To be allocated at a later date.

NOTE: ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):
- Certified Welders shall receive an additional $ 1.75 per hour provided they are directed to weld.
- On Building projects, If a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive an additional $ 1.50 per hour.
- H/H work performed on hazardous waste sites where employees are required to wear protective gear shall receive an additional $ 2.00 per hour over the Millwright H/H rate for all hours worked on the day protective gear was worn.
- An employee performing the work of a machinist shall receive an additional $ 2.00 per hour. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional $ 1.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 27.54

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

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on a Saturday shall be observed the preceding Friday.

REGISTERED APPRENTICES
WAGES per hour: One year terms at the following percentage of Journeyworker's wage:

Appr. 1st year	65%*
Appr. 2nd year	75%*
Appr. 3rd year	80%*
Appr. 4th year	90%*

*NOTE: Additional premium for the following work listed below:

Certified Welder	$ 1.75
Hazardous Waste (Bldg)	1.50
Hazardous Waste (H/H)	2.00
Machinist	2.00
Underground (500' and below)	1.00

SUPPLEMENTAL BENEFITS per hour:

Appr. 1st year	$ 11.96
Appr. 2nd year	22.86
Appr. 3rd year	24.42
Appr. 4th year	25.98

6-1163 Zone 2

Operating Engineer - Building — 08/01/2026

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 1

ENTIRE COUNTIES
Broome, Chenango, Tioga

WAGES
NOTE:
-- In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.
-- If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C

CLASS A1**: All cranes that require A NYS crane license, tower cranes***(including self erecting), hydraulic cranes, locomotive crane, piledriver, cableway, derricks, whirlies, dragline, boom trucks over 5 tons, cherry pickers, overhead cranes (gantry or saddle type), truck cranes

CLASS A:
Shovel, Excavators 18,001 lbs. and above(including rubber tire full swing), Gradalls, power road grader, all CMI equipment, front-end rubber tire loader, tractor-mounted drill (quarry master), mucking machine, concrete central mix plant, concrete pump, belcrete system, automated asphalt concrete plant, and tractor road paver, boom trucks 5 tons and under, maintenance engineer, self-contained crawler drill-hydraulic rock drill, Profiler/Milling machine.

CLASS B:
Excavators 18,000 lbs. and under, Backhoes (rubber tired backhoe/loader combination), bulldozer, pushcat, tractor, traxcavator, scraper, LeTourneau grader, form fine grader, self-propelled soil compactor (fill roller), asphalt roller, blacktop spreader, power brooms, sweepers, trenching machine, Barber Green loader, side booms, hydro hammer, concrete spreader, concrete finishing machine, one drum hoist, power hoisting (single drum), hoist two drum or more, three drum engine, power hoisting (two drum and over), two drum and swinging engine, three drum swinging engine, hod hoist, A-L frame winches, core and well drillers (one drum), post hole digger, model CHB Vibro-Tamp or similar machine, batch bin and plant operator, dinky locomotive, skid steer loader, track excavator 5/8 cubic yard or smaller, front end rubber tired loader under four cubic yards, vacum machine (mounted or towed).

CLASS C:
Fork lift, high lift, all terrain fork lift: or similar, oiler, fireman and heavy-duty greaser, boilers and steam generators, pump, vibrator, motor mixer, air compressor, dust collector, welding machine, well point, mechanical heater, generators, temporary light plants, electric submersible pumps 4" and over, murphy type diesel generator, conveyor, elevators, concrete mixer, beltcrete power pack (belcrete system), seeding, and mulching machines, pumps, rotating telehandler (that does not require NYS crane license).

WAGES per hour

	07/01/2026	07/01/2027	07/01/2028	07/01/2029
Building		Additional	Additional	Additional
Class A1**	$ 57.45	$ 5.03*	$ 5.62*	$ 5.61*
Class A	$ 53.01	5.00*	5.60*	6.10*
Class B	$ 52.42	4.87*	5.45*	5.95*
Class C	$ 49.96	4.72*	5.32*	5.79*

(*) To be allocated at a later date

Additional $2.50 per hr over B rate for Nuclear Leader work.
Additional $2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

(**)TONNAGE RATING PREMIUMS:
Note: Additional value subject to same premiums as shown for OT
All cranes 1000 tons and over, A1 rate plus $7.00
All cranes 800-999 tons, A1 rate plus $6.00
All cranes 600-799 tons, A1 rate plus $5.00
All cranes 400-599 tons, A1 rate plus $4.00
All cranes 200-399 tons, A1 rate plus $3.00
All cranes 111-199 tons, A1 rate plus $2.25
All cranes 110 tons and under, A1 rate only

(***)Tower Cranes - A1 rate plus $ 0.50 (no tonnage premiums apply)

- Cranes in Luffer Configuration - A1 rate plus $ 5.00
- Cranes with external ballast (Tray or Wagon) - A1 rate plus $ 5.00
- NOTE: These premiums are in addition to the tonnage premiums if over 400 tons.

SUPPLEMENTAL BENEFITS
Per hour

Journeyworker	$ 34.30

OVERTIME PAY
See (B, E, *Q) on OVERTIME PAGE
*If a designated holiday is worked, employee shall receive 8 hours of straight time pay in addition to the double time rate for all hours worked.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: If a holiday falls on Sunday, it will be celebrated on Monday. If the holiday falls on Saturday, it will be celebrated on Friday.

REGISTERED APPRENTICES
Wages per hour

1000 hours terms at the following percentage of Journeyworker's wage Class B:

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour worked

All terms	$ 29.70

1-158 BCT

Operating Engineer - Heavy&Highway — 08/01/2026

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 1

ENTIRE COUNTIES
Albany, Broome, Chenango, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

PARTIAL COUNTIES
Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedell Road then east along Bedell Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 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 Connecticut.

WAGES
NOTE:
---In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.
---If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C.

CLASS A1**: All Cranes that require a NYS Crane License (Boom Truck, Cableway, Cherry Picker, Derrick, Dragline, Overhead Crane (Gantry or Straddle Type), Pile Driver, Tower Cranes (including self-erecting)***, Truck Crane).

CLASS A: Asphalt Curb Machine (self-propelled, slipform); Asphalt Paver; Automated Concrete Spreader (CMI type); Automatic Fine Grader; Backhoe (except tractor mounted, rubber tired); Backhoe Excavator, Full Swing (CAT 212 or similar type); Back Filling Machine; Belt Placer (CMI type); Blacktop Plant (automated); Blacktop Roller; Bull Dozer being operated with active GPS; Caisson Auger; Central Mix Concrete Plant (automated); Concrete Curb Machine (self-propelled, slipform); Concrete Pump; Cranes - listed in A1 that do not require a NYS Crane License; Directional Boring/Drilling Machine; Dredge; Dual Drum Paver; Excavator (all purpose-hydraulic, Gradall or similar); Front End Loader (4 cu. yd. & over); Head Tower (Sauerman or equal); Hoist (two or three drum); Holland Loader; Jetting Plow; Maintenance Engineer; Mine Hoist; Mucking Machine or Mole; Pavement Breaker (SP Wirtgen; PB-4 and similar type); Profiler/Milling Machine (over 105 h.p.); Power Grader; Quad 9; Quarry Master (or equivalent); Rotating Telehandler; Scraper (including challenger type); Shovel; Side Boom; Slip Form Paver; Tractor Drawn Belt-Type Loader; Truck or Trailer Mounted Log Chipper (self-feeder); Tug Operator (manned rented equipment excluded); Tunnel Shovel.

CLASS B: Backhoe (tractor mounted, rubber tired); Bituminous Recycler Machine; Bituminous Spreader and Mixer; Blacktop Plant (non-automated); Blast or Rotary Drill (truck or tractor mounted); Boring Machine; Bridge Deck Finishing Machine; Brokk; Cage Hoist; Central Mix Plant (non-automated) and All Concrete Batching Plants; Concrete Paver (over 16'); Crawler Drill (self-contained); Crusher; Diesel Power Unit; Drill Rigs (truck or tractor mounted); Front End Loader (under 4 cu. yd.); Greaseman - Lubrication Engineer; HiPressure Boiler (15 lbs & over); Hoist (one drum); Hydro-Axe; Kolman Plant Loader & similar type loaders (if employer requires another man to clean the screen or to maintain the equipment, they shall be an Oiler); Locomotive; Material Handling Knuckle Boom; Mini Excavators (under 18,000 lbs.); Mixer (for stabilized base, self-propelled); Monorail Machine; Profiler/Milling Machine (105 h.p. and under); Plant Engineer; Prentice Loader; Pug Mill; Pump Crete; Ready Mix Concrete Plant; Refrigeration Equipment (for soil stabilization); Road Widener; Roller (all above subgrade, See Class A for Blacktop Roller); Sea Mule; Self-contained ride-on Rock Drill (excluding Air-Track type drill); Skidder; Tractor with Dozer and/or Pusher; Trencher; Tugger Hoist; Vacuum Machine (mounted or towed); Vermeer Saws (ride-on, any size or type); Welder; Winch and Winch Cat; Work Boat Operator including L.C.M.'s.
NOTE: Effective 07/01/27 Prentice Loader will move to CLASS A.

CLASS C: "A" Frame Winch Hoist (On Truck); Aggregate Plant; Articulated Heavy Hauler; Asphalt or Concrete Grooving Machine (ride-on); Ballast Regulator (ride-on); Bituminous Heater (self-propelled); Boat (powered); Boiler (used in conjunction with production); Cement & Bin Operator; Compressors****; Concrete Pavement Spreader and Finisher; Concrete Paver or Mixer (16' & under); Concrete Saw (self-propelled); Conveyor; Deck Hand; Directional Boring/Drilling Machine Locator; Drill (Core); Drill (Well); Dust Collectors****; Electric Pump When Used in Conjunction with Well Point System; Farm Tractor with accessories; Fine Grade Machine; Fireman; Forklift; Form Tamper; Generators****; Grout Pump; Gunite Machine; Hammers (hydraulic self-propelled); Heaters****; Hydra-Spiker (ride-on); Hydraulic Pump (jacking system); Hydro-Blaster (water); Light Plants****; Mulching Machine; Oiler; Parapet Concrete or Pavement Grinder; Post Hole Digger (excluding hand-held); Post Driver; Power Broom (towed); Power Heaterman; Power Sweeper; Pumps****; Revinius Widener; Roller (subgrade & fill); Scarifier (ride-on); Shell Winder; Skid Steer Loader (Bobcat or similar) including all attachments; Span Saw (ride-on); Steam Cleaner; Tamper (ride-on); Tie Extractor (ride-on); Tie Handlers (ride-on); Tie Inserters (ride-on); Tie Spacers (ride-on); Tire Repair; Track Liner (ride-on); Tractor; Tractor (with towed accessories); Vacuum Machine (self-propelled); Vibratory Compactor; Vibro Tamp; Welding Machines****; Well Point.

****CLASS C NOTE: Considered Hands-Off (unmanned). Includes only operation and maintenance of the equipment.

Per hour:	07/01/2026	07/01/2027 Additional	07/01/2028 Additional	07/01/2029 Additional
CLASS A1**	$ 63.56	$ 4.29*	$ 4.42*	$ 4.56*
CLASS A	59.81	3.54*	3.67*	3.81*
CLASS B	58.90	3.54*	3.67*	3.81*
CLASS C	56.33	3.54*	3.67*	3.81*

* To be allocated at a later date.

(**) TONNAGE PREMIUMS:
All cranes up to 64 ton capacity - A1 rate
All cranes 65 ton to 110 ton capacity - A1 rate plus $ 1.50
All cranes 111 ton to 199 ton capacity- A1 rate plus $ 2.00
All cranes 200 ton to 399 ton capacity - A1 rate plus $ 3.00
All cranes 400 ton to 599 ton capacity - A1 rate plus $ 4.00
All cranes 600 ton to 799 ton capacity - A1 rate plus $ 5.00
All cranes 800 ton to 999 ton capacity - A1 rate plus $ 6.00
All cranes 1000 ton capacity and over - A1 rate plus $ 7.00

(***) Tower Cranes - A1 rate plus $ 3.00 (no tonnage premiums apply)

- Cranes in Luffer Configuration - A1 rate plus $ 5.00
- Cranes with external ballast (Tray or Wagon) - A1 rate plus $ 5.00

Additional $ 2.50 per hour for hazardous waste removal work on a State and/or Federally designated waste site which requires employees to wear Level C or above forms of personal protection.

SHIFT WORK
SINGLE IRREGULAR WORK SHIFT: Additional $ 2.50 per hour for all employees who work a single irregular work shift starting from 5:00 PM to 1:00 AM that is mandated by the Contracting Agency.

SUPPLEMENTAL BENEFITS
Per hour

Journeyworker $ 34.60

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

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

NOTE: If a holiday falls on Sunday, it will be celebrated on Monday. If an employee works on this Monday, they shall be compensated at double time plus the holiday pay (triple time).

REGISTERED APPRENTICES
WAGES per hour: Hourly terms at the following percentage of Journeyworker's CLASS B wage.

0-1000 hrs	60%
1001-2000 hrs	70%
2001-3000 hrs	80%
3001-4100 hrs	90%

An additional $ 2.50 per hour is required when an apprentice performs hazardous waste removal work on a State and/or Federally designated waste site which requires employees to wear Level C or above forms of personal protection.

SUPPLEMENTAL BENEFITS per hour:

All Terms	$29.20

1-158H/H Alb

Operating Engineer - Survey Crew 08/01/2026

JOB DESCRIPTION Operating Engineer - Survey Crew **DISTRICT** 12

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

PARTIAL COUNTIES
Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north.

WAGES
These rates apply to Building, Tunnel, and Heavy Highway.

Per hour:
SURVEY CLASSIFICATIONS:
Party Chief - One who directs a survey party and/or works independently.
Surveyor - One who operates the surveying instruments for measurements.
Survey Assistant - One who assists the Party Chief or Surveyor.

	07/01/2026	07/01/2027 Additional	07/01/2028 Additional
Party Chief	$ 56.64	$ 5.50*	$ 5.50*
Surveyor	52.74	$ 4.50*	$ 4.50*
Surveyor Assistant	36.00	$ 3.50*	$ 3.50*

Additional $3.00/hr. for Tunnel Work.
Additional $2.50/hr. for EPA or DEC certified toxic or hazardous waste work.

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS
Per hour worked:

Party Chief	$ 32.45
Surveyor	$ 32.45
Survey Assistant	$ 20.60

OVERTIME PAY
See (B, Q) on OVERTIME PAGE

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

REGISTERED APPRENTICES
WAGES: 1000 hour terms based on percentage of Surveyor wage:

07/01/2026

0-1000	1001-2000	2001-3000
60%	70%	80%

SUPPLEMENTAL BENEFIT per hour worked:

All Terms: $ 22.65

12-158-545 D.H.H.

Operating Engineer - Survey Crew - Consulting Engineer — 08/01/2026

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT** 12

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

PARTIAL COUNTIES
Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north.

WAGES
These rates apply to feasibility and preliminary design surveying, line and grade surveying for inspection or supervision of construction when performed under a Consulting Engineer Agreement.

Per hour:
SURVEY CLASSIFICATIONS:
Party Chief - One who directs a survey party and/or works independently
Surveyor - One who operates the surveying instruments for measurements
Survey Assistant - One who assists the Party Chief or Surveyor.

	07/01/2026	07/01/2027 Additional	07/01/2028 Additional
Party Chief	$ 56.64	$ 5.50*	$ 5.50*
Surveyor	52.74	$ 4.50*	$ 4.50*
Survey Assistant	36.00	$ 3.50*	$ 3.50*

Additional $3.00/hr. for Tunnel Work.
Additional $2.50/hr. for EPA or DEC certified toxic or hazardous waste work.

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS
Per hour worked:

Party Chief	$ 32.45
Surveyor	$ 32.45
Survey Assistant	$ 20.60

OVERTIME PAY
See (B, Q) on OVERTIME PAGE

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

REGISTERED APPRENTICES
WAGES: 1000 hour terms based on percentage of Surveyor wage:

07/01/2026		
0-1000	1001-2000	2001-3000
60%	70%	80%

SUPPLEMENTAL BENEFIT per hour worked:
All Terms: $22.65

12-158-545 DCE

Operating Engineer - Tunnel — 08/01/2026

JOB DESCRIPTION Operating Engineer - Tunnel **DISTRICT** 7

ENTIRE COUNTIES
Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES
Dutchess: Northern part of Dutchess, to the northern boundary line of the City of Poughkeepsie, then due east to Route 115 to Bedell Road, then east along Bedell Road to VanWagner Road, then north along VanWagner Road to Bower Road, then east along Bower Road to Rte. 44 east to Rte. 343, then along Rte. 343 east to the northern boundary of the Town of Dover Plains and east along the northern boundary of the Town of Dover Plains, to the borderline of the State of Connecticut.

Genesee: Only that portion of the county that lies east of a line drawn down the center of Route 98 and the entirety of the City of Batavia.

WAGES

CLASS A: Automatic Concrete Spreader (CMI Type); Automatic Fine Grader; Backhoe (except tractor mounted, rubber tired); Belt Placer (CMI Type); Blacktop Plant (automated); Cableway; Caisson Auger; Central Mix Concrete Plant (automated); Concrete Curb Machine (self-propelled slipform); Concrete Pump (8" or over); Dredge; Dual Drum Paver; Excavator; Front End Loader (4 cu. yd & over); Gradall; Head Tower (Sauerman or Equal); Hoist (shaft); Hoist (two or three Drum); Log Chipper/Loader (self-feeder); Maintenance Engineer (shaft and tunnel); any Mechanical Shaft Drill; Mine Hoist; Mining Machine(Mole and similar types); Mucking Machine or Mole; Overhead Crane (Gantry or Straddle Type); Pile Driver; Power Grader; Remote Controlled Mole or Tunnel Machine; Scraper; Shovel; Side Boom; Slip Form Paver (If a second man is needed, they shall be an Oiler); Tripper/Maintenance Engineer (shaft & tunnel); Tractor Drawn Belt-Type Loader; Tug Operator (manned rented equipment excluded); Tunnel Shovel.

CLASS B: Automated Central Mix Concrete Plant; Backhoe (track mounted, rubber tired); Backhoe (topside); Bituminous Spreader and Mixer, Blacktop Plant (non-automated); Blast or Rotary Drill (truck or tractor mounted); Boring Machine; Cage Hoist; Central Mix Plant(non-automated); all Concrete Batching Plants; Compressors (4 or less exceeding 2,000 c.f.m. combined capacity); Concrete Pump; Crusher; Diesel Power Unit; Drill Rigs (tractor mounted); Front End Loader (under 4 cu. yd.); Grayco Epoxy Machine; Hoist (One Drum); Hoist (2 or 3 drum topside); Knuckle Boom material handler; Kolman Plant Loader & similar type Loaders (if employer requires another person to clean the screen or to maintain the equipment, they shall be an Oiler); L.C.M. Work Boat Operator; Locomotive; Maintenance Engineer (topside); Maintenance Grease Man; Mixer (for stabilized base-self-propelled); Monorail Machine; Plant Engineer; Personnel Hoist; Pump Crete; Ready Mix Concrete Plant; Refrigeration Equipment (for soil stabilization); Road Widener; Roller (all above sub-grade); Sea Mule; Shotcrete Machine; Shovel (topside); Tractor with Dozer and/or Pusher; Trencher; Tugger Hoist; Tunnel Locomotive; Vacuum Machine (mounted or towed); Welder; Winch; Winch Cat.

CLASS C: A Frame Truck; All Terrain Telescoping Material Handler; Ballast Regulator (ride-on); Compressors (4 not to exceed 2,000 c.f.m. combined capacity; or 3 or less with more than 1200 c.f.m. but not to exceed 2,000 c.f.m.); Compressors (any size, but subject to other provisions for compressors); Dust Collectors; Generators; Pumps; Welding Machines; Light Plants (4 or any type combination); Concrete Pavement Spreaders and Finishers; Conveyor; Drill (core); Drill (well); Electric Pump used in conjunction with Well Point System; Farm Tractor with Accessories; Fine Grade Machine; Fork Lift; Grout Pump (over 5 cu. ft.); Gunite Machine; Hammers (hydraulic-self-propelled); Hydra-Spiker (ride-on); Hydra-Blaster (water); Hydro-Blaster; Motorized Form Carrier; Post Hole Digger and Post Driver; Power Sweeper; Roller grade & fill); Scarifier (ride-on); Span-Saw (ride-on); Submersible Electric Pump (when used in lieu of well points); Tamper (ride-on); Tie-Extractor (ride-on), Tie Handler (ride-on), Tie Inserter (ride-on), Tie Spacer (ride-on); Track Liner (ride-on); Tractor with towed accessories; Vibratory Compactor; Vibro Tamp, Well Point.

CLASS D: Aggregate Plant; Cement & Bin Operator; Compressors (3 or less not to exceed 1,200 c.f.m. combined capacity); Compressors (any size, but subject to other provisions for compressors); Dust Collectors; Generators; Pumps; Welding Machines; Light Plants (3 or less or any type or combination); Concrete Saw (self-propelled); Form Tamper; Greaseman; Hydraulic Pump (jacking system); Junior Engineer; Light Plants; Mulching Machine; Oiler; Parapet Concrete or Pavement Grinder; Power Broom (towed); Power Heaterman (when used for production); Revinius Widener; Shell Winder; Steam Cleaner; Tractor.

Per hour:	07/01/2026	07/01/2027 Additional	07/01/2028 Additional	07/01/2029 Additional
CLASS A	$ 60.95	$ 3.54*	$ 3.67*	$ 3.81*
CLASS B	59.73	3.54*	3.67*	3.81*
CLASS C	56.94	3.54*	3.67*	3.81*
CLASS D	53.93	3.54*	3.67*	3.81*

* To be allocated at a later date.

Additional $5.00 per hour for Hazardous Waste Work on a state or federally designated hazardous waste site where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection.

CRANES:
Crane 1: All Tower cranes, including self-erecting.
Crane 2: All Lattice Boom Cranes and all other cranes with a manufacturer's rating of fifty (50) ton and over.
Crane 3: All hydraulic cranes and derricks with a manufacturer's rating of forty nine (49) ton and below, including boom trucks.

Crane 1	$ 64.95
Crane 2	63.95
Crane 3	62.95

SUPPLEMENTAL BENEFITS

Per hour:

$ 26.05
+ 10.85*

* This portion of the benefits subject to SAME PREMIUM as shown for overtime wages.

OVERTIME PAY

See (B, B2, E, Q, X) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: If a holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES
WAGES per hour: Hourly terms at the following percentage of Journeyworker's CLASS B wage.

1st term: (0-1000 hrs) 60%
2nd term: (1001-2000 hrs) 65%
3rd term: (2001-3000 hrs) 70%
4th term: (3001-4100 hrs) 75%

Additional $5.00 per hour for Hazardous Waste Work on a state or federally designated hazardous waste site where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection.

SUPPLEMENTAL BENEFITS per hour: Same as Journeyworker.

7-158-832TL.

Painter — 08/01/2026

JOB DESCRIPTION Painter **DISTRICT** 2

ENTIRE COUNTIES
Broome, Chenango, Tioga

WAGES
Per hour:

	07/01/2026
Painter	$ 29.12
Taper, Paperhangers, and Vinyl hangers	30.58

ADDITIONAL AMOUNTS FOR SPECIFIC TYPES OF JOBSITE CONDITIONS (amount subject to any overtime premiums):
- Additional $ 1.10 per hour for Brush and Roll Epoxy (Solvent Base Only)
- Additional $ 0.60 per hour for Swing Scaffold, Boatswain chair, Spray helper, Steam cleaning acid and high pressure water, Power grinders with respirator
- Additional $ 0.60 per hour for Structural steel (buildings) defined as new or old construction where ceilings, walls or the steel itself is to be painted from open trusses which require climbing or crawling without the support of solid scaffolding or scaffolding starting at the floor or ground level.
- Additional $ 1.00 per hour for Spray Painting
- Additional $ 1.00 per hour for Steeple Jack (Over 100 feet)
- Additional $ 1.50 per hour for Spray Epoxy (Solvent Based)
- Additional $ 0.90 per hour for Sandblasting

NOTE - SEE BRIDGE PAINTER RATES FOR BRIDGES & TANKS

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker $ 25.91

OVERTIME PAY
See (B, E2, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
A Holiday that falls on a Sunday will be celebrated on Monday, a holiday that falls on a Saturday will be celebrated on Friday.

REGISTERED APPRENTICES
WAGES:

Painter: 750 hour terms at the Painter Apprentice wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 18.00	$ 19.00	$ 20.00	$ 21.00	$ 22.00	$ 23.00	$ 24.00	$ 25.00

Taper: 750 hour terms at the following Journeyworker Taper Apprentice wage rate:

1st	2nd	3rd	4th	5th	6th
$ 20.00	$ 21.00	$ 22.00	$ 23.00	$ 24.00	$ 25.00

ADDITIONAL AMOUNTS FOR SPECIFIC TYPES OF JOBSITE CONDITIONS (amount subject to any overtime premiums):
- Additional $ 1.10 per hour for Brush and Roll Epoxy (Solvent Base Only)
- Additional $ 0.60 per hour for Swing Scaffold, Boatswain chair, Spray helper, Steam cleaning acid and high pressure water, Power grinders with respirator
- Additional $ 0.60 per hour for Structural steel (buildings) defined as new or old construction where ceilings, walls or the steel itself is to be painted from open trusses which require climbing or crawling without the support of solid scaffolding or scaffolding starting at the floor or ground level.
- Additional $ 1.00 per hour for Spray Painting
- Additional $ 1.00 per hour for Steeple Jack (Over 100 feet)
- Additional $ 1.50 per hour for Spray Epoxy (Solvent Based)
- Additional $ 0.90 per hour for Sandblasting

SUPPLEMENTAL BENEFITS per hour:
Painter/Decorator:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 6.00	$ 7.00	$ 8.00	$ 9.10	$ 11.00	$ 11.00	$ 13.00	$ 14.00

Taper/Drywall Finisher:

1st	2nd	3rd	4th	5th	6th
$ 6.00	$ 7.00	$ 8.00	$ 10.00	$ 13.00	$ 14.00

2-178 B

Painter 08/01/2026

JOB DESCRIPTION Painter **DISTRICT** 3

ENTIRE COUNTIES
Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Cortland, Delaware, Erie, Genesee, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

WAGES
Per hour: 07/01/2026

Bridge	$ 47.39
Tunnel	47.39
Tank*	45.39

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.

*Tank rate applies to indoor and outdoor tanks, tank towers, standpipes, digesters, waste water treatment tanks, chlorinator tanks, etc. Covers all types of tanks including but not limited to steel tanks, concrete tanks, fiberglass tanks, etc.

SHIFT WORK
Note an additional $1.50 per hour is required when the contracting agency or project specification requires any shift to start prior to 6:00am or after 12:00 noon.

SUPPLEMENTAL BENEFITS
Per hour:
$ 32.81

OVERTIME PAY
Exterior work only See (B, E2, E4, F, R) on OVERTIME PAGE.
All other work See (B, F, R) on OVERTIME PAGE.

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

REGISTERED APPRENTICES
Wages per hour:

750 hour terms at the following wage:

1st	2nd	3rd	4th	5th	6th
$ 24.00	$ 26.00	$ 28.00	$ 30.00	$ 34.00	$ 38.00

Supplemental benefits per hour:

1st	2nd	3rd	4th	5th	6th
$ 6.60	$ 6.95	$ 7.30	$ 7.65	$ 8.00	$ 8.35

3-4-Bridge, Tunnel, Tank

Painter - Metal Polisher — 08/01/2026

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

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

WAGES

	07/01/2026
Metal Polisher	$ 41.33
Metal Polisher*	42.43
Metal Polisher**	45.33

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

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker:
All classifications $ 13.99

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:

	07/01/2026
1st year	$ 20.67
2nd year	22.73
3rd year	24.80
1st year*	$ 21.06
2nd year*	23.17
3rd year*	25.34
1st year**	$ 23.17
2nd year**	25.23
3rd year**	27.30

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

Supplemental benefits:
Per hour:

1st year	$ 9.19
2nd year	9.19
3rd year	9.19

8-8A/28A-MP

Plumber — 08/01/2026

JOB DESCRIPTION Plumber **DISTRICT** 2

ENTIRE COUNTIES
Broome, Chenango

PARTIAL COUNTIES
Cortland: Only the Township of Marathon.
Delaware: Only the Townships of Andes, Bovina, Colchester, Davenport, Delhi, Deposit, Franklin, Hamden, Hancock, Harpersfield, Kortright, Masonville, Meredith, Sidney, Stamford, Tompkins and Walton.
Madison: Only the Township of Georgetown.

Otsego: Only the Townships of Burlington, Butternuts, Decatur, Edmeston, Hartwick, Laurens, Maryland, Milford, Morris, New Lisbon, Oneonta, Otego, Pittsfield, Unadilla, Westford and Worchester.
Tioga: Only the Townships of Newark Valley and Owego.

WAGES

Per hour:	07/01/2026
Plumber	$ 46.91
Steamfitter	46.91

SHIFT WORK

Agency-mandated shift operations:

1. Shift work shall start no earlier than 6AM Monday and will conclude no later than 9AM Saturday (overtime premiums applicable after 8 hours in a shift).

2. Single irregular shiftwork, less than 3 consecutive days will be paid at the rate of time and one-half of the regular hourly rate.

3. 3 consecutive work days or more:
First Shift - No Premium (Starting 6AM-9AM)
Second Shift - Regular hourly rate plus 12%
Third Shift - Regular hourly rate plus 18%

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker	$ 16.00
	+18.81*

*This portion of the benefit is subject to the SAME PREMIUM as shown for overtime on projects over $100 million in total construction costs (including engineering & architecture).

OVERTIME PAY

See (B, E, Q, *V) on OVERTIME PAGE
*portion of supplemental benefits subject to V code when project cost is over $100 million (including engineering & architecture).

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
When a Holiday falls on Sunday, it will be celebrated the following day. If the holiday falls on a Saturday, it will be observed that day unless so determined by the Federal Government to be celebrated on a different day.

REGISTERED APPRENTICES

WAGES: One year terms at the following percentage of Journeyworker's wage.

1st.	2nd.	3rd.	4th.	5th.
50%	55%	60%	70%	85%

SUPPLEMENTAL BENEFITS per hour:

1st term	$ 16.00
	+9.42*
All other terms	$ 16.00
	+14.81*

*This portion of the benefit is subject to the SAME PREMIUM as shown for overtime on projects over $100 million in total construction costs (including engineering & architecture).

2-112s-SF

Roofer 08/01/2026

JOB DESCRIPTION Roofer **DISTRICT** 2

ENTIRE COUNTIES

Broome, Chemung, Chenango, Delaware, Otsego, Schoharie, Schuyler, Steuben, Tioga, Tompkins

WAGES

Per hour:	07/01/2026	06/01/2027 Additional	06/01/2028 Additional
Roofer, Waterproofer	$ 31.79	$ 3.50**	$ 4.00**
	+ 1.06*		

*This amount is paid for all hours worked, whether regular or premium hours.
**To be allocated at a later date.

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount not subject to overtime premiums):
- On days where more than one shift is worked on the job, the hours worked after 4:30 PM and before 6:00 AM will be paid an additional $1.90 per hour premium. This premium is not for use in emergency repair situations.
- Premium of $1.25 per hour will be paid for the application, rip-off, torching, or handling of pitch products. The premium will be paid for pitch that is showing, covered or buried on the roof.
- Premium of $1.25 per hour will be paid for asbestos abatement requiring a half face respirator.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 24.99

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

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

REGISTERED APPRENTICES
Wages:
Indentured prior to 06/01/2026:

Hours per term	
0-667 Hrs.	$ 22.25 + 0.74*
668-1334 Hrs.	23.84 + 0.79*
1335-2001 Hrs.	25.43 + 0.85*
2002-2668 Hrs.	27.02 + 0.90*
2669-3335 Hrs.	28.61 + 0.95*
3336-4000 Hrs.	30.20 + 1.01*

Indentured on or after 06/01/2026:

Hours per term	
0-600 Hrs.	$ 25.43 + 0.85*
601-1200 Hrs.	26.23 + 0.87*
1201-1800 Hrs.	27.02 + 0.90*
1801-2400 Hrs.	27.82 + 0.93*
2401-3000 Hrs.	28.61 + 0.95*
3001-3600 Hrs.	29.41 + 0.98*
3601-4200 Hrs.	30.20 + 1.01*
4201-4800 Hrs.	31.00 + 1.03*

*This amount is paid for all hours worked, whether regular or premium hours.

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount not subject to overtime premiums):
- On days where more than one shift is worked on the job, the hours worked after 4:30 PM and before 6:30 AM will be paid an additional $1.90 per hour premium. This premium is not for use in emergency repair situations.
- Premium of $1.25 per hour will be paid for the application, rip-off, torching, or handling of pitch products. The premium will be paid for pitch that is showing, covered or buried on the roof.
- Premium of $1.25 per hour will be paid for asbestos abatement requiring a half face respirator.

Supplemental Benefits:
Indentured prior to 06/01/2026:

Hours per term	
0-667 Hrs.	$ 20.93
668-1334 Hrs.	21.60
1335-2001 Hrs.	22.29
2002-2668 Hrs.	22.96
2669-3335 Hrs.	23.63
3336-4000 Hrs.	24.32

Indentured on or after 06/01/2026:

Hours per term	
0-600 Hrs.	$ 11.45
601-1200 Hrs.	11.45
1201-1800 Hrs.	19.50
1801-2400 Hrs.	23.30
2401-3000 Hrs.	23.63

3001-3600 Hrs.	23.97
3601-4200 Hrs.	24.32
4201-4800 Hrs.	24.65

2-203elmi

Sheetmetal Worker — 08/01/2026

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 2

ENTIRE COUNTIES
Allegany, Broome, Chemung, Delaware, Otsego, Schuyler, Steuben, Tioga, Tompkins

WAGES
Per hour:

	07/01/2026	05/01/2027 Additional
Sheetmetal Worker	$ 40.82 + 1.02*	$ 4.00**

NOTE: Ten cents ($0.10) per hour additional premium to be paid when working polyresin fiberglass.
*Amount is paid for every hour worked (amount not subject to overtime premium)
**To be allocated at a later date

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker: $ 25.33

OVERTIME PAY
See (*B1, Q) on OVERTIME PAGE
*On Saturday, time and one half of the hourly rate for the first ten (10) hours, then two (2) times the hourly wage rate for all hours after ten (10) hours worked.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
Note: Holidays are observed on the Holiday, not on the day that it is locally observed.

REGISTERED APPRENTICES
WAGES per hour:
Indentured after 05/01/2025 (1-year Terms):

	1st	2nd	3rd	4th	5th
07/01/2026	$ 24.49 +0.61*	$ 26.53 +0.66*	$ 28.57 +0.71*	$ 32.66 +0.82*	$ 34.70 +0.87*

Indentured prior to 05/01/2025 (Half Year Terms):

	1st	2nd	3rd	4th	5th	6th	7th	8th
07/01/2026	$ 24.49 +0.61*	$ 24.49 +0.61*	$ 26.53 +0.66*	$ 28.57 +0.71*	$ 30.62 +0.77*	$ 32.66 +0.82*	$ 34.70 +0.87*	$ 36.74 +0.92*

*Amount is paid for every hour worked (amount not subject to overtime premium)

SUPPLEMENTAL BENEFITS per hour:
Indentured after 05/01/2025:

	1st	2nd	3rd	4th	5th
07/01/2026	$ 2.28	$ 21.05	$ 21.13	$ 21.30	$ 25.08

Indentured prior to 05/01/2025:

	1st	2nd	3rd	4th	5th	6th	7th	8th
07/01/2026	$ 2.28	$ 2.28	$ 21.05	$ 21.13	$ 21.22	$ 21.30	$ 21.38	$ 21.46

2-112

Sprinkler Fitter — 08/01/2026

JOB DESCRIPTION Sprinkler Fitter **DISTRICT** 1

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

WAGES

Per hour

	07/01/2026	01/01/2027	04/01/2027	01/01/2028
Sprinkler Fitter	$ 47.91	$ 47.91	$ 50.76	$ 50.76

SUPPLEMENTAL BENEFITS
Per hour

Journeyworker	$ 30.71	$ 31.71	$ 31.71	$ 32.71

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
One Half Year terms at the following wage per hour:

	07/01/2026	01/01/2027	04/01/2027	01/01/2028
1st Term	$ 24.50	$ 24.50	$ 25.73	$ 25.73
2nd Term	27.35	27.35	28.72	28.72
3rd Term	29.63	29.63	31.11	31.11
4th Term	31.91	31.91	33.50	33.50
5th Term	33.62	33.62	35.30	35.30
6th Term	36.47	36.47	38.29	38.29
7th Term	38.75	38.75	40.68	40.68
8th Term	41.03	41.03	43.08	43.08
9th Term	43.30	43.30	45.47	45.47
10th Term	45.58	45.58	47.86	47.86
Supplemental Benefits per hour:				
1st & 2nd Term	$ 10.23	$ 11.23	$ 11.23	$ 12.23
3rd & 4th Term	22.79	23.79	23.79	24.79
All Other Terms	23.04	24.04	24.04	25.04

1-669

Teamster - Building — 08/01/2026

JOB DESCRIPTION Teamster - Building **DISTRICT** 6

ENTIRE COUNTIES
Broome, Cayuga, Cortland, Delaware, Onondaga, Seneca, Tompkins, Yates

PARTIAL COUNTIES
Allegany: Only the Townships of Alfred, Almond, Burns.
Chenango: Only the Townships of Afton, Bainbridge, Coventry, Greene, Guilford, Oxford and Smithville.
Madison: Only the Townships of Cazenovia, DeRuyter, Fenner, Georgetown, Lenox, Nelson and Sullivan.
Oswego: All Townships except Boylston, Redfield and Sandy Creek.
Otsego: Only the Townships of Butternuts, Laurens, Maryland, Millford, Morris, Oneonta, Otego, Unadilla, and Worchester.
Steuben: Only the Townships of Canisteo, Cohoctan, Dansville, Fremont, Greenwood, Hornell, Hartsville, Jasper, Prattsburg, Troupsburg, and West Union.
Tioga: Only the Townships of Berkshire, Candor, Newark Valley, Nichols, Owego, Richford, and Tioga. All territory east of Nichols/Smithboro to Broome County, within the State of New York.

WAGES
GROUP A: Straight Trucks.
GROUP B: Tractor Trailer, Farm Tractor, Fuel Truck.
GROUP C: Euclid.
GROUP D: On site Mechanic.

Per hour:	07/01/2026	07/01/2027	07/01/2028
Building: (under $ 5 million*)			
GROUP A, B, C, D	$ 38.65	$ 42.31	$ 47.91
Building: (over $ 5 million*)			
GROUP A, B	$ 39.70	$ 43.36	$ 48.96
GROUP C	40.05	43.71	49.31
GROUP D	39.85	43.51	49.11

* Total project cost including General Construction, Plumbing, HVAC and Electrical

NOTE: All work performed at nuclear power plants, and fuel trucks that require a hazardous materials license, shall receive a $ 5.00 per hour premium above the applicable wage rate.

SUPPLEMENTAL BENEFITS
Per hour:

(under $ 5 million*)	$ 33.16	$ 35.51	$35.92
(over $ 5 million*)	33.96	36.31	36.73

* Total project cost including General Construction, Plumbing, HVAC and Electrical

OVERTIME PAY
(D, O) on OVERTIME PAGE

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

6-317

Teamster - Heavy&Highway 08/01/2026

JOB DESCRIPTION Teamster - Heavy&Highway **DISTRICT** 2

ENTIRE COUNTIES
Broome, Delaware

PARTIAL COUNTIES
Chenango: Only the Townships of Smithville, Greene, Coventry, Oxford, Afton, Bainbridge and Guilford.
Otsego: Only the Townships of Butternuts, Laurens, Maryland, Milford, Morris, Oneonta, Otego, Unadilla and Worchester.
Tioga: Only the Townships of Nichols, Tioga, Candor, Richford, Berkshire, Newark Valley and Owego.

WAGES
Per hour:

GROUP #1: Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks (straight jobs), Single Axle Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Tiremen, Mechanic Helpers and Parts Chasers, Tandems and Batch Trucks, Mechanics, Dispatcher. Semi-Trailers, Low-boy Trucks, Asphalt Distributor Trucks, Agitator, Mixer Trucks and Dumpcrete type vehicles, Truck Mechanic.

GROUP #2: Specialized Earth Moving Equipment-Euclid type or similar off-highway where not self-loading. Straddle (Ross) Carrier, and self-contained concrete mobile truck. Off-highway Tandem Back-Dump, Twin Engine Equipment and Double-Hitched Equipment where not self-loading.

GROUP #3: Fuel Truck that requires a HazMat license endorsement.

	07/01/2026	07/01/2027
Group #1	$ 39.98	$ 43.64
Group #2	40.07	43.73
Group #3	44.98	48.64

NOTES
- An additional $1.50 per hour shall be paid to an employee who performs hazardous waste removal work on a City, County, State and/or Federally designated waste site where employee is required to use or wear personal protective equipment.

SHIFT WORK
- A single irregular work shift can start any time between 5:00pm and 1:00am. All employees who work a single irregular shift on governmental mandated night work shall be paid an additional $5.00 per hour (applicable on projects bid on or after 07/01/2020).

SUPPLEMENTAL BENEFITS
Per hour paid:

$ 28.85	$ 29.69

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

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
If a holiday falls on Sunday, it will be celebrated Monday.
Any employee laid off within the week in which a holiday falls shall receive holiday pay.

2-317(Bing)

Welder 08/01/2026

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	07/01/2026

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
(B3)	Time and one half of the hourly rate after 40 straight 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)	Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E5)	Double time after 8 hours on Saturdays
(F)	Time and one half of the hourly rate on Saturday and Sunday
(G)	Time and one half of the hourly rate on Saturday and Holidays
(H)	Time and one half of the hourly rate on Saturday, Sunday, and Holidays
(I)	Time and one half of the hourly rate on Sunday
(J)	Time and one half of the hourly rate on Sunday and Holidays
(K)	Time and one half of the hourly rate on Holidays
(L)	Double the hourly rate on Saturday
(M)	Double the hourly rate on Saturday and Sunday
(N)	Double the hourly rate on Saturday and Holidays
(O)	Double the hourly rate on Saturday, Sunday, and Holidays
(P)	Double the hourly rate on Sunday
(Q)	Double the hourly rate on Sunday and Holidays
(R)	Double the hourly rate on Holidays

(S)	Two and one half times the hourly rate for Holidays
(S1)	Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
(T)	Triple the hourly rate for Holidays
(U)	Four times the hourly rate for Holidays
(V)	Including benefits at SAME PREMIUM as shown for overtime
(W)	Time and one half for benefits on all overtime hours.
(X)	Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

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

OVERTIME Holiday Pay:

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

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

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

(29) Juneteenth

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

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

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

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

This Form Must Be Typed

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

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

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

Telephone Fax

E-Mail:

2. NY State Units (see Item 5).

- ☐ 01 DOT
- ☐ 02 OGS
- ☐ 03 Dormitory Authority
- ☐ 04 State University Construction Fund
- ☐ 05 Mental Hygiene Facilities Corp.
- ☐ 06 OTHER N.Y. STATE UNIT
- ☐ 07 City
- ☐ 08 Local School District
- ☐ 09 Special Local District, i.e., Fire, Sewer, Water District
- ☐ 1O Village
- ☐ 11 Town
- ☐ 12 County
- ☐ 13 Other Non-N.Y. State (Describe)

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

Telephone Fax

E-Mail:

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

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

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

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

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

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Fuel Delivery
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

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

10. Name and Title of Requester

Signature

SEE PAGE TWO FOR LAWS RELATING TO PUBLIC WORK CONTRACTS

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

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

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

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

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

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

For inquiries please call 518-457-5589.

NYSDOL Bureau of Public Work Debarment List 08/28/2026

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	DOL		AKHLAQ OULAKH		4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		ALEXANDER DELISA		411 THEODORE FREMND SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL	*****8387	AMERICAN PAVING & MASONRY, CORP.		8 FOREST AVE GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL	*****8654	AMERICAN PAVING, INC.		8 FORREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	NYC	*****8017	AMIN ELECTRICAL CORP.		97-23 218TH STREET QUEENS VILLAGE NY 11429	12/04/2025	12/04/2030
DOL	DOL		ANGELO STANCO		8 FOREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY CASALE		20 HEATHER RIDGE ROAD TROY NY 12180	05/20/2025	05/20/2030
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL	*****3932	B ROC CONSTRUCTION INC		7307 WOODSIDE ROAD VICTOR NY 14564	05/06/2025	05/06/2030
DOL	DA	*****2404	BJA RENOVATION, CORP		33 DOLLARD DR NORTH BABYLON NY 11703	03/19/2025	03/19/2030
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL		C.M.C CONTRACTORS, INC.		500 WEST PUTNAM AVE SUITE 400GREENWICH CT 06830	09/03/2025	09/03/2030
DOL	DOL		CARLOS F. ESCOBAR		411 THEODORE FREMD AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	DOL		CARLOS FIGUEROA		411 THEODORE FREMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTION	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL		CESAREO TULA		120 SEARS AVE ELMSFORD NY 10523	09/26/2025	09/26/2030
DOL	DOL	*****2292	CHAMPION MAINTENANCE CONTRACTORS, INC.		211 SOUTH RIDGE STREET RYE BROOK NY 10573	09/03/2025	09/03/2030
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DOL		CHARLES CASALE		55 MAIN AVENUE WYNANTSKILL NY 12198	05/20/2025	05/20/2030
DOL	DOL		CHARLES CASALE		55 MAIN AVENUE WYNANTSKILL NY 12198	05/20/2025	05/20/2030
DOL	DOL		CHRISTOPHER PEROSI		5507 NESCONSET HIGHWAY MT. SINAI NY 11766	07/17/2025	07/17/2030
DOL	DOL	*****2281	CORRAO TRUCKING, INC.		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	*****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL DELISA		211 SOUTH RIDGE STREET RYE BROOK NY 10573	09/03/2025	09/03/2030
DOL	DOL		DANIEL LOHAN		6836 N. LEXINGTON LANE NILES IL 60714	05/28/2026	05/28/2031
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL		DARWIN PEGUESE		6400 BALTIMORE NATIONAL SUITE 602CANTONSVILLE NY 21228	10/24/2024	10/24/2029
DOL	DOL		DAVID FRIEDLANDER		64 NORTH PUTT CORNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL		DENISE NAGLE		36 OAKWOOD TRAIL S AL MONROE NY 10950	10/29/2025	10/29/2030

NYSDOL Bureau of Public Work Debarment List 08/28/2026

Article 8

DOL	DOL		DINA TAYLOR		64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL	*****2337	EGL DRAINAGE SOLUTION & REPAIRS LLC		5507 NESCONSET HIGHWAY MT. SINAI NY 11766	07/17/2025	07/17/2030
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EMIL KISZKO		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	*****3298	EMJACK CONSTRUCTION CORP.		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	*****3298	EMJACK CONSTRUCTION LLC		4192 SIR ANDREW CIRCLE DOYLESTOWN PA 18902	07/18/2024	07/18/2029
DOL	NYC		ENRICO MANETTA		101 MALBA DR. WHITESTONE NY 11357	04/01/2026	04/01/2031
DOL	DOL		EUGENIUSZ "GINO" KUCHAR		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DOL	*****2998	G.E.M. AMERICAN CONSTRUCTION CORP.		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	NYC		GHANSHYAM AMIN		97-23 218TH STREET QUEENS VILLAGE NY 11429	12/04/2025	12/04/2030
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		GIOVANNI NAPOLITANO		2501 BAYVIEW AVENUE WANTAGH NY 11793	02/21/2024	02/21/2029
DOL	DA	*****0213	GORILLA CONTRACTING GROUP, LLC		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DA	*****4760	GTX CONSTRUCTION ASSOCIATES, CORP		2501 BAYVIEW AVE WANTAGH NY 11793	02/21/2024	02/21/2029
DOL	DOL		HENRY WICKE A/K/A HENRY WICKE, JR.		36 OAKWOOD TRAIL S AL MONROE NY 10950	10/29/2025	10/29/2030
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	*****6961	HUNTER ELEVATOR COMPANY, INC.		36 OAKWOOD TRAIL S AL MONROE NY 10950	10/29/2025	10/29/2030
DOL	DOL	*****2397	ISLAND BREEZE MARINE, INC.		6400 BALTIMORE NATIONAL CANTONSVILLE MD 21228	10/24/2024	10/24/2029
DOL	DOL	*****5010	J. LINDSLEY ENTERPRISE, LLC		1002 STATE ROUTE 176 FULTON NY 13069	07/30/2025	07/30/2030
DOL	DOL	*****0241	J. LINDSLEY ROOFING, LLC		211 NORTH 2ND STREET FULTON NY 13069	07/30/2025	07/30/2030
DOL	DOL		J.M.J CONSTRUCTION		151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES LINDSLEY		211 NORTH 2ND STREET FULTON NY 13069	07/30/2025	07/30/2030
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	*****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	DOL		JENNIFER LINDSLEY		211 NORTH 2ND STREET FULTON NY 13069	07/30/2025	07/30/2030
DOL	DOL		JERRY DASTON		36 OAKWOOD TRAIL S AL MONROE NY 10950	10/29/2025	10/29/2030
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 NAGLE A/K/A JOHN NAGLE, JR.		36 OAKWOOD TRAIL S AL MONROE NY 10950	10/29/2025	10/29/2030
DOL	DOL		JONATHAN DELISA		411 THEODORE FREMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	DOL		JORGE FIGUEROA		411 THEODORE FRMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	DA		JOSEPH DEMASCO		33 DOLLARD DRIVE NORTH BABYLON NY 11703	01/30/2026	01/30/2031
DOL	DA		JOSEPH DEMASCO		33 DOLLARD DRIVE NORTH BABYLON NY 11703	03/19/2025	03/19/2030
DOL	DOL		JOSEPH HALL		937 US ROUTE 11 CENTRAL SQUARE NY 13036	10/21/2024	10/21/2029
DOL	DOL	*****2271	JOSEPH HALL COMPANIES LLC		937 US ROUTE 11 CENTRAL SQUARE NY 13036	10/21/2024	10/21/2029
DOL	DOL		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028

DOL	DOL		KEVIN FUNEZ URBINA A/K/A KEVIN FUNEZ		1009 LYNDALE AVE TRENTON NJ 08629	12/16/2024	12/16/2029
DOL	DOL	*****8760	KJ&J CONSTRUCTION, LLC		1009 LYNDALE AVE TRENTON NJ 08629	12/16/2024	12/16/2029
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	DOL	*****3716	LIGHTNIN ELECTRIC INC.		3418 NORTHERN BLVD SUITE 5-27LONG ISLAND CITY NY 11101	12/13/2024	12/13/2029
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LIZETTE PONCE		411 THEODORE FREMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	NYC	*****7516	MANCO ENTERPRISES OF NY, INC.		44-17 54TH DR. MASPETH NY 11378	04/01/2026	04/01/2031
DOL	NYC	*****1783	MANETTA ENTERPISES, INC. D/B/A MANETTA INDUSTRIES		44-17 54TH DR. MASPETH NY 11378	04/01/2026	04/01/2031
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	*****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	DOL		MOHAMMAD MIAN		8269 21ST ST BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	NYC		NASEER CHAUDHRY		2349 BRAGG STREET BROOKLYN NY 11229	04/22/2025	04/22/2030
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 BARNETT		33 DOLLARD DR BABYLON NY 11703	03/04/2025	03/04/2030
DOL	DOL		NICHOLAS RAO		411 THEODORE FREMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
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		NIKOLA NTONI		3418 NORTHERN BLVD SUITE 5-27LONG ISLAND CITY NY 11101	12/13/2024	12/13/2029
DOL	NYC	*****6971	NN CONSTRUCTION, INC.		2349 BRAGG STREET BROOKLYN NY 11229	04/22/2025	04/22/2030

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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	*****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL	*****2041	QUALITY STEEL ERECTORS INC.		6836 N. LEXINGTON LANE NILES IL 60714	05/28/2026	05/28/2031
DOL	DOL	*****4772	R.W. LOBDELL CONSTRUCTION LLC		635 WEST DRYDEN ROAD FREEVILLE NY 13068	01/31/2025	01/31/2030
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DOL		ROBBYE BISSESAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL		ROSA GARCIA		411 THEODORE FRMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		SILVANO TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
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		STEVEN DELISA		411 THEODORE FREMND AVE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
DOL	DOL	*****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED MUHAMMAD S. JAFRI A/K/A SHARRUKH JAFRI		4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL		TARLOK SINGH		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL		TARLOK SINGH		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	*****4855	TECH INDUSTRIES LLC		20 HEATHER RIDGE ROAD TROY NY 12180	05/20/2025	05/20/2030
DOL	DOL	*****2426	THE MATRUKH GROUP, INC.		4307 28TH AVE PO BOX 9082ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		THOMAS LOBDELL		635 WEST DRYDEN ROAD FREEVILLE NY 13068	01/31/2025	01/31/2030
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	DOL	*****8485	TULA PLUMBING AND HEATING LLC		120 SEARS AVE ELMSFORD NY 10523	09/26/2025	09/26/2030
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL		VINCENT CORRAO		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL		WILLIAM A BELL		7307 WOODSIDE ROAD VICTOR NY 14564	05/06/2025	05/06/2030
DOL	DOL	*****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM SCRIVENS		4192 SIR ANDREW CIRCLE DOYELSTOWN PA 18902	07/18/2024	07/18/2029

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DOL	DOL	*****9494	WND CONSTRUCTION LLC		411 THEODORE FREMD AVENUE SUITE 206RYE NY 10580	09/03/2025	09/03/2030
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
4. Campus specific general requirements, if any

01 11 00 Description of Work (Section A)

1. Work to be Done
    a. The Work to be done under the Contract, in accordance with the Contract Documents, consists of performing, installing, furnishing and supplying all materials, equipment, labor and incidentals necessary or convenient for the construction of SUCF Project No 071108-00 titled Replace Roofs – Administration and Health Services Buildings
    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: full tear-off and replacement of the roof areas shown on the contract drawings and associated hazmat, interior ceiling, window and skylight, structural and MEP work.
2. Work Not Included:
    a. Work not included in the Work of the Contract are those items marked "N.I.C"; movable furnishings, except those specifically specified or indicated on the Drawings; and items marked "by others".

01 11 13 Coordination with Other Contracts

1. There may be other contracts let for work to be done in and/or adjacent to Work areas of this Contract during the Work period of this Contract. This Contractor and such other contractors shall coordinate their work to conform to the progressive operation of all the work covered by such contracts and afford each other reasonable opportunities for the introduction and storage of their supplies, materials, equipment, and the execution of their work. Refer to Section 2.16 of the Agreement.

2. Where Work is turned over from/to others, perform the following:
    a. At least two weeks prior to the turnover date, inspect the work provided by others with the Consultant. In accordance with Section 2.12(2) of the Agreement, notify the Consultant of apparent discrepancies or defects in such other construction that would render it unsuitable for the proper execution and results required by this Contract.

3. At least two weeks prior to the turnover date, inspect the Work of this Contract to be turned over to others with the Consultant and perform corrective work, if any, as determined by the Consultant, prior to the scheduled turnover date.

4. 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.

071099-00 Replace storefronts and exterior doors.

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 75 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 "Nicole Bouteiller"; in the line starting with Title, insert "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 "518-807-7348" and in the line starting with E-mail address, insert "nicole.bouteiller@suny.edu".

2. N/A

3. N/A

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. The Contractor's base bid shall include all sheet metal fittings necessary for the routing of the duct systems shown on the Contract drawings for the Project. The straight duct sections shown on the Contract drawings may not provide the required routing to achieve the connections due to coordination with other trades (and existing conditions). The amount of these additional fittings may be up to 35% of the total ductwork shown (by weight) on the project Contract drawings. Fittings include elbows, transitions, offsets, taps, tees, branches, and all non-straight ductwork of all types and configurations; plus related insulations, linings, supports and appurtenances. Additional fittings required by field conditions encountered after the approval of the Coordinated Drawings shall be the sole responsibility of the Contractor and shall be installed at no additional cost to the Fund.

01 31 10 Language Requirement

1. All spoken and written communications, submittals, signage, and other media regarding the Project shall be in the English language unless otherwise agreed to by the Fund. If any original documents required for the Project are in any other language, provide an English translation, which shall take precedence in the event of conflict with the original language. When technically feasible, use gender neutral terminology in lieu of gendered.

01 31 13 10 Exploratory Demolition

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

2. Exploratory demolition shall be paid for as a Field Order in accordance with Section 4.05A of the Agreement, except for the following work, which is part of the base bid:

   None

01 31 19 Field Meetings

1. Periodic job meetings will be scheduled by the Consultant during the course of construction. The Contractor, and, upon request of the Consultant or the Fund, its principal subcontractors and manufacturer's representatives, shall attend such meetings and be prepared to furnish answers to questions on progress, workmanship, requests for Information, supplementary information, scope and price for extra work, if any, or any other subject on which the Consultant or the Fund might reasonably require information.

2. In addition to the requirements of Section 3.06 of the Agreement, the Contractor shall submit bi-weekly reports to the Consultant summarizing the last two weeks of Work and next two weeks of Work anticipated, listing the percent of Work complete by trade, tabulating manpower utilized / projected, relevant shop drawing and submittals progress, relevant offsite fabrication progress and providing other information which may be reasonably required to understand the progress of the work.

3. In addition to the above referenced meetings, the Contractor shall schedule and manage periodic coordination meetings at the site between it and all its trades, subcontractors, suppliers, manufacturers, etc. to settle the allotment of Work per Article I, Section 1.07 of the Agreement and to review progress on submittals and shop drawing, progress on installation of the work, conflicts between work of trades, compliance with the design intent, adherence to the Contractor’s schedule, quality control, planning for commissioning and training of Campus personnel, and other items which require coordination and sharing of information. Representatives of the Consultant and the Fund may attend these meetings to observe and make comments. These meetings shall be held a minimum of once per month and more frequently where required to effectively coordinate the construction. The Contractor shall prepare and distribute summary minutes of these meetings within 5 working days of the

meeting, in accordance with the "Document Tracking and Change Control Paragraph" of this section. Distribution of the coordination meeting minutes shall be to all attendees with copies to the Fund and Consultant whether they are in attendance or not.

4. The personnel representing the Contractor and its principal subcontractors shall have the authority to make decisions directly affecting the work.

5. In addition to the above meetings, meet to review fire safety periodically during the Work and, starting approximately sixteen weeks prior to the scheduled date of substantial completion, the Contractor's principals, project manager and those of its significant subcontractors shall attend additional weekly meetings with the Owner and its consultant(s) to review the progress on preparing close out deliverables, including those in Sections 01 78 23, Operating Instructions and Manuals, 01 78 36, Warranties and 01 79 00, Training of Campus Personnel.

01 31 19 10 Mock ups

1. Progress on the completion of mock ups specified in Divisions 2 through 48 shall be addressed by the Contractor at periodic meetings.

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

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

    a. Accepted mock ups are the Sample and the criteria against which the remaining Work shall be judged.
    b. Spaces with interior mockups shall have the scheduled lighting fixtures installed, or the equivalent temporary lighting, as approved by the Consultant, during the review and approval period.
    c. Remove markings when directed by the Consultant.
    d. Promptly record mock up locations on the Record Drawings.
    e. Where the markings have been removed and not record exists as to which surface was the mock up, the Consultant may either select a different surface as the mock up or direct the Contractor to install another one, at no additional cost to the owner.
    f. Unless an accepted mock up is specified to remain in Divisions 2 through 48, demolish and remove mockups when directed by the Consultant.

4. Installation methods, environmental conditions and other contractor employed means and methods for installing the mock up may be observed by the Consultant and shall be employed and maintained in all remaining work. Workers performing the mock up Work shall be employed for installation the remaining work. At any time during the remaining work, if additional workers are employed, they may be requested to demonstrate competency by providing a mock up of their work.

5. In addition to the mock ups that are specified in Divisions 1 through 48, inclusive and for the purposes of determining if workers are suitable and competent in accordance with Section 2.07 of the Agreement, the Consultant may direct the Contractor to have workers provide mock ups to demonstrate their ability to properly perform their Work prior to performing Work that will be part of the completed Project.

01 31 19 33 Pre-Installations Meetings

1. Attend meetings to coordinate the efforts of all concerned parties with construction activities and to demonstrate that adequate preparations for particular construction activities have been completed. These meetings are required for any mobilization, demolition work, excavation, removal of any demolished or excavated material from the site, LEED related work, concrete work, steel erection, waterproofing, roofing, utility shutdowns or taps, commissioning or Campus training related Work and where required within each specific section of the specifications. The meeting should be attended by the following:

    a. Consultant
    b. Construction Fund
    c. Campus
    d. Contractor's Superintendent
    e. Subcontractor's Superintendent / Foreman, as applicable.
    f. Material and/or Equipment Manufacturer's Representatives, as applicable.
2. Agenda: Review and discuss applicable requirements of the Work for the following:
    a. Compliance with Contract Documents and related field or change orders
    b. Submittals, products, and mock-ups
    c. Manufacturer's recommendations
    d. Warranty requirements
    e. Employment of competent and suitable workers and equipment
    f. Deliveries, storage, and handling
    g. Possible conflicts and compatibility problems
    h. Schedule
    i. Weather limitations
    j. Compatibility of materials
    k. Acceptance of substrates
    l. Quality Assurance
    m. Testing and inspecting requirements (including Special Inspections)
    n. Temporary facilities and controls
    o. Space and access limitations
    p. Regulations of authorities having jurisdiction
    q. Required performance results
    r. Protection of completed construction
    s. Other factors that may reasonably apply to the work

01 31 26 Document Tracking and Change Control

1. The Contractor shall maintain a computerized document and change control system to prepare, monitor status, and electronically file and send all documents and changes associated with, and required for the Project. If this system is different than the system required in Section 01 33 23, Shop

Drawings and Samples, customize and configure this system as required to provide optimal coordination with the system required in Section 01 33 23.

2. The Contractor must have a MAPI-compliant e-mail system, such as Microsoft Outlook or Exchange.

3. The Contractor must provide experienced and trained personnel to maintain the document control system per this requirement. If the Consultant or the Fund determines that experienced personnel are not operating the control system, then the Contractor's personnel must attend the minimum training at Contractor's sole expense.

01 32 13 Special Project Schedule/Phasing

1. The Contractor shall be permitted to start field-Work subject to the following.

    a. In accordance with Section 2.06 of the Agreement, provide onsite the approved dedicated superintendent who has documented experience on three (3) other projects of similar size and scope where he/she effectively lead and managed crews of the size required to perform the similar work, planned and implemented a similar sequence of Work that minimized the impact to Campus/building occupants and deployed and managed the workers required to meet the schedule and the specified level of quality for the completed similar work.

    b. Demonstrate that all materials required for the complete performance of the proposed field work are on site, inspected, inventoried and deemed readily available for installation of the work.

    c. Provide a sequenced, summary list of field activities related to the transfer of the Work areas from the Campus to the contractor and related mobilization activities. Include those related to posting and notification to Campus, erection of temporary signage for code, directional and informational purposes, and other activities required to facilitate the start up of construction activities. Review the list with the Campus and the consultant and modify it to incorporate their comments. Follow the sequence of the approved list during field activities.

    d. Submit the Safety Procedures Manual required in Paragraph 01 35 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 twelve weeks after the Notice to Proceed) with the Owner, consultant and the Contractor's principals, project manager and those of its significant subcontractors; (3) re-sequencing activities to recover from start up delays in the progressive operation of interrelated work and (4) other activities commonly associated with the start up of field work.

b. Academic Calendar: The Contractor is advised that the Campus intends to maintain a full institutional program throughout the Project duration. The Campus will make continuous use of adjacent spaces, buildings and site, except where Work is scheduled or specified to occur. All Contract Work must be scheduled and performed without causing unscheduled interruption of the normal institutional activities and processes. The Contractor shall coordinate their work with the following Campus Calendar, and No Utility shutdowns will be permitted during Registration, Study Periods, Exam Periods, or Commencement.

i. https://www.binghamton.edu/academics/academic-calendar.html

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. Sequence the Work in phases to meet the following interim milestones dates:

1. Limit roof removal/replacement to between April 1 and October 31 of any calendar year.
2. No shutdowns or deliveries during the following dates (exact dates are available as the academic calendar rolls out):
   - Commencement Weekends
   - Student Move In Fall dates
3. No noise producing work during academic quiet days (exact dates are available as the academic calendar rolls out): Reading/Exams - Spring and Fall.
4. Work affecting the interior of the 8th floor of Couper Administration (The President's floor) and the interior of Decker Health Services shall be scheduled during summer only (when students are not on campus) and in accordance with the school's academic calander.

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.

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 Schedule of Work – Contractor's Coordination with the utility companies.

See drawings ED-101 and ED-102 for required coordination with Goosetown.

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 four (4) printed copies, 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 monthly 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

a. Notice to Proceed (Milestone Date)
b. Mobilization
c. Environmental & Abatement
d. M-E-P-S Systems-Fixtures/Trim/Accessories
e. Interior General Construction
f. Equipment & Specialties
g. Testing, Training & Commissioning
h. Substantial Completion/ C of O (Milestone Date)
i. Start of Guarantee Period
j. SUCF Contract Completion Date (if different from above)
k. Final Completion - All punch list/outstanding items satisfied (Milestone Date)
l. Field Order Work (multiple periods of work proportional to the dollar value of the field order allowance starting at the Notice to Proceed and ending at Substantial Completion.)
m. Other milestones as may be required by the Fund, the Consultant or the Contractors – specifically list any significant product whose source is outside of the United States.

1. Project Schedule shall include the following:

a. The Contractor shall prepare a construction progress schedule which shall consist of a Critical Path Method (CPM) schedule as described below and shall incorporate the Schedule Summary Activities and Milestone Dates as indicated in item j below.

b. The development and updating of the Construction Progress Schedule shall be by the critical path method (CPM) and shall be computer generated using the latest version of PRIMAVERA Systems scheduling software. Other computer software will not be accepted.

c. The CPM Schedule shall consist of time-scaled logic diagrams and other data specified herein. The diagrams shall show activities of the project in detail and in summary format. Diagrams shall also show the order and interdependence of activities and the sequence in which the Work is to be accomplished, incorporating the schedule summary activities and milestone dates indicated in item j below, and as further planned by the contractor. All logical relationships shall be finish to start, with the following exceptions: (1) Activities at the start of the project may be start to start (2) At a milestone or project finish, activities may be finish to finish. Lag factor use will be limited, and if used, identified as a functional activity. The use of imposed start dates will also be limited. The retained logic mode shall be used for calculations.

d. In addition to construction activities the CPM schedule shall include, but not be limited to, the following:

    i. Testing activities / required inspections (Show Contractor provided tests that are specified in Divisions 1 through 48, inclusive, and Consultant performed tests, where applicable).
    ii. Subcontractor selection and approvals (major subcontractors submitted within 48 hours of bid).
    iii. Shop drawing preparation and approval activities. Sequence submissions to provide sufficient time for the coordination of shop drawings of one trade that impact other trades, as required by Section 2.19 of the Agreement. Also include mock ups and pre-installation meetings where specified. Where practical, submittals shall be broken into smaller review packages of approximately 50 to 75 drawings. Each package will have its own activities in the schedule for submission, review and procurement. Package and schedule submission of shop drawings in sequence with the procurement schedule to spread submittal review periods out over the greatest time period practical.
    iv. Procurement schedule (order dates, fabrication, deliveries, and long lead items – specifically list any significant product whose source is outside of the United States).
    Special Campus restrictions, i.e., Campus approvals for Work site access, shutdowns and other impacts (noise/ testing & examination/ site and building access etc.).
    vi. Requirements for any on site shutdowns that may impact work.
    vii. Training and/or instruction of Campus personnel.
    viii. Commissioning of major building systems including pre-functional testing, startup, functional testing, operational scenario testing and retesting as required.
    ix. Campus furnished products installed by the Contractor.
    x. Periodic meetings on construction fire safety with the Campus Fire Prevention Program Superintendent and other interested parties.
    xi. Meetings on site with Consultant to review mock ups and detailing. Include time for the Consultant to review and consider the work of mock ups, which may be up to two weeks before mockups can be approved and installation of the material or systems may begin.

e. The detail of information shall be such that activity duration, in general, will range from 3 to 30 days. Activity description and duration shall be shown for each activity on the diagrams. The critical path shall be determined and shall be clearly indicated on the diagrams.

f. A Summary Schedule of the entire Work of the Contract shall be provided along with the initial submittal and each update using PRIMAVERA software. The contractor shall code the activities on the initial detailed schedule to summarize the same so that the resulting Summary Schedule Activities match those listed in item j below.

g. A CPM Report shall be provided along with the initial submittal and each update and shall include a tabulation of each activity shown on the CPM schedule. The following information shall be furnished as a minimum for each activity: Activity I.D., Description, Duration, Early/Late Start, Early/Late Finish, and Total Float. Reports and updating will indicate actual start and completion for completed activities and actual start and percentage complete and remaining duration for activities in progress.

h. Initial phases of Work shall include time in the schedule for training crews, acclimating trades to the sequence and apportionment of activities, additional meetings with the owner, Consultant, Contractor and the significant subcontractors, and re-sequencing activities to recover from start-up delays typically caused by normal activities associated with the start up of field work.

i. Submission and review of the schedule shall be as follows:

    i. A preliminary CPM schedule, consisting of time-scaled logic diagrams and other data specified herein, defining the contractor's planned operations during the first 120 days, shall be submitted after receipt of the Notice of Award but before receipt of the Notice to Proceed. The CPM schedule shall be sufficiently detailed to show clearly, in sequence, all salient features of the work of each trade including: the anticipated time of commencement and completion of such work and the interrelationship between such work, submission of Shop Drawings and Samples for approval, approval of Shop Drawings and Samples, placing of orders of materials, fabrication and delivery of materials, installation and testing of materials, contiguous or related work under other contracts, and other items pertinent to the Work that may occur in the first 120 days. The Notice to Proceed may be withheld until this schedule is received and is deemed responsive to the project requirements.

    ii. The complete CPM Schedule, including the time-scaled logic diagrams, narrative, summary schedule, manpower schedule if applicable and activity reports shall be submitted within 60 calendar days after receipt of the Notice to Proceed but before processing second progress payment application. The Fund's Consultant will review The Schedule to ascertain that it meets the overall project objectives and that it contains all necessary milestone dates or other required elements. At that time the schedule will become the Schedule of Record (SOR) and the established "Base-Line" for project monitoring purposes. In addition to the requirements in 4.10 (1) of the Agreement, the second progress payment

application will not be acted on until this schedule is received and is deemed responsive to the project requirements.

iii. This review of the Schedule of Record is for the sole purpose of determining whether it meets the overall project objectives and milestone dates and to whether all related phasing, restrictions, Campus supplied fixturing/equipment, or any other potential impact(s), have been addressed. Agreement on the "SOR" does not constitute approval of the Contractor's means, methods, sequencing, or duration of activities. THIS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

iv. Float is defined as the amount of time between the early start date and the late start date or the early finish date and the late finish of any of the activities in the CPM Schedule. Float is not time for the exclusive use or benefit of either the Fund or the Contractor.

v. Initial submittal, complete revisions and updates shall be submitted in four (4) copies (minimum 18" X 24"), one PDF and in native electronic format with all input data formatted for PRIMAVERA software.

vi. The Schedule of Record shall be revised by the Contractor until it is satisfactory to the Fund and the Consultant, and the same shall be periodically revised thereafter and submitted by the Contractor to the Fund and the Consultant for acceptance at such time or times the Fund or the Consultant may request.

vii. Whether or not the Consultant and the Fund have accepted the Project Schedule, the Schedule of Record shall be updated monthly and shall be submitted along with the Contractor's application for payment. For the two intervening month periods the Contractor may "mark for progress" the SOR and submit with the applications for payment.

viii. If the actual progress of the Work is behind the timeline of the Schedule of Record by more than 15 working days, then the Contractor shall provide a new and completely revised schedule that shall be called the recovery schedule. The recovery schedule shall be provided as follows: 1.) if more than 120 calendar days remains until the date of Substantial Completion then provide within 30 calendar days after the Consultant's request, 2.) if less than 120 calendar days remains until the date of Substantial Completion, provide within 15 calendar days after the Consultant's request. The recovery schedule's purpose is to change the sequencing of activities, duration of activities, and /or other factors as required to return the actual projected schedule completion date to that of the SOR. The recovery schedule is in addition to the regular updates. If the actual progress of the Work is behind the timeline of the submitted recovery schedule by more than 15 working days, then the Contractor shall provide a new and completely revised recovery schedule.

ix. Provide a historic schedule as requested by the Fund that shows the actual activity descriptions and durations that occurred during the work for each activity on the diagrams. The actual critical path shall be documented and shall be clearly indicated on the historic diagrams.

j. Milestone Start and Finish Dates & Summary Activities

i. Notice to Proceed (Milestone Date)
ii. Mobilization
iii. Environmental & Abatement
iv. Building Frame & Enclosure
v. M-E-P-S Systems-Fixtures/Trim/Accessories
vi. Interior General Construction
vii. Equipment & Specialties
viii. Testing, Training & Commissioning
ix. Substantial Completion/ C of O (Milestone Date)
x. Campus Installed/Furnished FF&E (Fixtures, Furnishing & Equipment)
xi. Start of Guarantee Period
xii. SUCF Contract Completion Date (if different from above)
xiii. Final Completion - All punch list/outstanding items satisfied (Milestone Date)
xiv. Field Order Work (multiple periods of work proportional to the dollar value of the field order allowance starting at the Notice to Proceed and ending at Substantial Completion.)
xv. Other milestones as may be required by the Fund, the Consultant or the Contractors.

01 32 29 Notice of Non-Compliance

1. In the event the Consultant views the Work or some portion thereof and finds that it has not been performed in accordance with the requirements of the Contract documents, a Notice of Non-Compliance will be issued to the Contractor for action. Payment shall not be made for any portion of the Work for which a Non-Compliance Notice has been issued and the Work not corrected to the satisfaction of the Consultant.

2. Upon receipt of a Non-Compliance Notice the Contractor shall provide a written response to the Notice within ten (10) working days after receipt of the Notice. The Contractor's response shall detail either:

   a. Why they believe that the Work was performed in accordance with the Contract documents, or,
   b. What corrective action they intend to take, at their sole expense, to correct the non-conforming work.

3. Refer to Article II Section 2.02 for Contractor's contention to the decision.

01 32 33 Project Photographs

1. Prior to beginning work, the contractor shall schedule with the Consultant, the Campus, and the Fund sufficient periods of time in which the Contractor shall photographically record existing conditions for all project areas using digital video in MPEG-2 format. Video shall be made at high resolution (1440 x 1152) and shall adequately zoom in on selected elements for clear representation of existing conditions. All video recording shall be done in the presence of the Consultant. Submit the completed video on DVD disk(s) to the Consultant for the record.

2. Photograph any and all damaged or misaligned materials or surfaces which may in any way be misconstrued as having occurred during the implementation of this Contract. Inspect all existing conditions on all paths of travel on the site, adjacent right of ways, and within the building with the Consultant. With clear labeling and convenient indexing, provide written documentation for each video disk referencing both the disk and site locations of recorded images of any and all damage that could be misconstrued as being caused by the Contractor's Work and/or access. Repair all damage to existing conditions and along the paths of travel caused by Contractor's Operations.

01 32 33 10 Photo Documentation Services

N/A

01 32 33 30 Roof Inspection

1. When directed by the consultant, prior to work on the existing roofs and again after completion of all work on / near those roof levels, use a firm experienced in roof inspection to scan the roofs with the infrared camera. Spray paint the exact contours of any and all moisture laden areas, if any, on the roof surface. During the survey, use a nuclear moisture detector to verify the accuracy of the infrared camera and to check questionable anomalies. Use the nuclear meter to detect moisture, if any, that is located deep in the roofing system. Provide a computer-generated roof plan to scale showing all pertinent roof top equipment and the locations, square footages, and contours of all moisture laden areas, if any. If required, provide corrective repairs and replacement roof systems when directed by the Consultant.

01 33 23 Shop Drawings, Samples, Submittals and other information - (Refer to Section 2.19 of the Agreement)

1) In addition to the requirements of Section 2.19 of the Agreement and as specified in Divisions 1 through 48, inclusive, comply with the submittal requirements of this section. In addition, where the term "or equal" is specified in Divisions 1 through 48, inclusive, refer to and comply with the requirements of Section 2.20 of the Agreement. Shop Drawings required Divisions 1 through 48, inclusive, may include drawings, diagrams, schedules, product data and other information or materials specially prepared for the Work by the Contractor to illustrate some portion of the work. Product data required by Divisions 1 through 48, inclusive, are standard illustrations, schedules, performance charts, instructions, brochures diagrams and other information amended by the Contractor to illustrate materials or equipment for some portion of the work.

ELECTRONIC SUBMITTALS

1. The Contractor shall set up and maintain a web-based submittal service to log, transmit and track (in real time) all project related documents.

    a. All project submittals, reviews and re-submittals shall uploaded in Portable Document Format (PDF) and, if approved by the Consultant, other electronic formats requested by

the Contractor. Divide, package and submit all submittals in accordance with Section 01 32 16, Project Schedule.

b. The service will also post, track and store RFI's (Request for Information), Supplemental Information, safety procedures manual, emergency contact and action plans, coordination drawings, traffic plans, utility cutover plans, schedule documents, meeting minutes, look-aheads, daily activity reports, project photo documentation, material safety data sheets, waste manifests, diesel emissions, field surveys, utility bills payable to the Campus, Campus furnished products, testing activities and results, closeout, Operating Instructions and Manuals, planting maintenance, commissioning submittals, SWPPP documents and other non-product related submittals required in the technical specifications. The service will review the Contract Documents and provide the list of items to be tracked.

c. The PDF files shall be created at a minimum resolution of 200 dots per inch utilizing the original document size and full color. Increase the resolution of the scanned file or images being submitted as required to properly present the information. PDFs created by scanning are not acceptable unless all images of text are properly and completely transformed into the electronic characters representing the text.

d. The Contractor shall include the full cost of Submittals Website project (all contracts) subscription in their proposal. When approved by the Consultant, all other project related consultants, Campus staff, other contractors and vendors will utilize the Submittals Website at no additional charge (unlimited number of users). Web-based training and support shall be available, free of charge from the Submittals Website, for all project participants.

e. Acceptable Submittal Website shall document conformance with the following requirements:

    i. Independently hosted, web-based system for automated tracking, storage and distribution of Contract submittals and other Contract related documents. FTP sites, e-mail exchanges, and server-based systems hosted from inside a contractor's office will not be considered.
    ii. Utilize 256-bit SSL encryption and hosted at SAS70 Type II compliant data centers.
    iii. Minimum four (4) years' experience of use on comparable commercial construction projects.
    iv. Website requirements:
        1. Minimum of four years documented 99.5% website uptime.
        2. b) Minimum on-line storage required for the duration of this Contract (until final closeout).
        3. c) Redundant storage of all project information (all contracts) at a minimum of two geographically separate storage sites (not in the same building).

f. At completion of project, provide PDF/A copies of all submittals (except physical samples) stored and labeled on four (4) sets of archival optical discs, Universal Serial Bus (USB) flash drives or other electronic data storage devices approved by the Consultant, which include all documents and tracking logs in a navigable format.

2. Paper prints (hard copies) of reviewed submittals:

   a. N/A

   b. Contractor Copies: The Contractor will be responsible for making copies, for the Contractor's own use and for use by its subcontractors and suppliers.

   c. Those marked *"REJECTED"* are not in accordance with the Contract Documents and shall be resubmitted.
   d. *"REVISE AND RESUBMIT"* Contractor shall correct and resubmit.
   e. *"MAKE CORRECTIONS NOTED"*: The contractor shall comply with corrections and may proceed. Resubmittal is not required.
   f. *"APPROVED - NO EXCEPTIONS TAKEN"*: The contractor may proceed.

   g. All shop drawings and/or submittals used on the construction site must bear the impression of the Consultant's review stamp as well as the Contractor's review stamp, indicating the status of review and the date of review. Contractor Copies: The Contractor will be responsible for making copies, for the Contractor's own use and for use by its subcontractors and suppliers.

   h. All shop drawings shall reflect actual site conditions and accurate field dimensions. Dimensioned shop drawings shall be submitted for all fabricated items. Incomplete submittals will be rejected without review. Using electronic copies of the Contract Documents to prepare shop drawings, if permitted in the technical specifications, doesn't relieve the contractor of its responsibility for the accuracy of all information contained on the shop drawings. Verify and coordinate all information necessary to produce accurate and complete shop drawings.

      i. All shop drawings, submittals and samples shall include:
      ii. Date and revision dates.
      iii. Project title and number.
      iv. Names of:
      v. Contractor
      vi. Subcontractor
      vii. Supplier
      viii. Manufacturer

   i. Provide information regarding shop drawings, submittals and samples at the Periodic Meetings.
   j. The project specific submittal log is bound after the General Requirements. Note: The bound submittal log provides a general submittals (shop drawings, samples, mock-ups, O&M manuals, training, extra stock, maintenance during the guarantee period, warranties, test reports and other submittals) in the technical specifications and may not be all inclusive. In case of conflict or omission, the requirements of the technical specifications take precedence over the bound log.

   k. At completion of project, provide PDF/A copies of all submittals (except physical samples) stored and labeled on four (4) sets of archival optical discs, Universal Serial Bus (USB) flash drives or other electronic data storage devices approved by the Consultant

that include all documents and tracking logs in a navigable format. PDFs created by scanning are not acceptable unless all images of text are properly and completely transformed into the electronic characters representing the text.

01 33 23 20 Coordination Drawings

1. Before construction Work commences and before submitting shop drawings for sleeves, piping, ductwork, etc., the Contractor shall require that the installers/ subcontractors for all trades submit Coordination Drawings.

2. The Contractor shall manage the process so that each trade/subcontractor provides all required information in a timely manner. Coordination Drawings may be completed on a phased basis so as not to delay the overall project schedule. The CPM Schedule specified elsewhere in this section shall be amended to include the submission of Coordination Drawings. The same shall demonstrate how the Contractor intends to integrate the submission of Coordination Drawings to suit the overall project schedule.

3. Coordination Drawings shall show the resolution of trade conflicts in congested areas prior to submission of shop drawings and actual installation. The Drawings shall coordinate the placement and location of ductwork, fittings, light fixtures, cable trays, fire alarm devices, sprinklers, air terminals, hangers, supports and other ceiling mounted items shown and specified with each other, and other building elements such as ceilings, structural work, case work, equipment, doors, manufacturer's recommended maintenance clearances, code required clearances and visibility sightlines (NEC, etc.), access doors and other Contract work.

4. In public and occupied areas without scheduled finish ceilings, appearance is a major coordination factor. Reposition proposed locations of Work after Coordination Drawing review by the Consultant. Provide adjustments to the exact size, location and offsets of ducts, pipes, and conduit to achieve reasonable appearance objectives. Provide these adjustments as part of the Contract or notify the Consultant immediately as to why the adjustment cannot be made.

5. The medium and format of the Coordination Drawings shall be as follows:

    a) The Contractor shall use either the Overlay Drafting System with pin bar registration to assure layer alignment, or CADD software to create the Coordination Drawings.

    b) Each MEP Division trade shall be assigned a layer to create the detailing work of each section or division of the Specifications requiring coordination. The Contractor shall insure that the layer assigned to one trade cannot be modified by another trade, and that the final product clearly differentiates which trade is responsible for the respective information shown. The latter may occur through the use of colors or other distinct graphic methods.

    c) The final product shall be in the form of reproducible transparencies drawn at a scale not less than 3/8 inch per foot for the entire building and each mezzanine. Mechanical and Electrical equipment rooms shall be drawn separately at a scale not less than 1/2 inch per foot and be submitted with the drawings of the entire building. At conflicts between the trades, provide

details, elevations and sections of similar or larger scale as may be required to provide a clear three dimensional resolution of the conflict.

d) The Coordination Drawings shall be prepared as follows:

i) The Contractor shall prepare the base floor plan(s) in the medium chosen.
ii) The HVAC trade installer shall prepare the first layer of the Coordination Drawings showing all ductwork, and all pertinent heating piping and equipment. This plan may be a copy of the required ductwork shop drawings.
iii) The Contractor shall provide electronic or transparent copies to all the other trades/subcontractors.
iv) The Plumbing, Fire Protection, Controls and other non-electrical trades shall show all their piping, equipment, valves, fittings and other specified appurtenances.
v) The Electrical, Fire Alarm, and other electrical trades shall show all systems and equipment, including transformers, panels, terminals, devices, detectors, lighting fixtures, cable trays, outlets, and conduits and raceways 1" or larger. Cable tray layout shall include appropriate clearances to motors, ballasts, and other sources of electromagnetic interference.
vi) The Contractor shall review the Drawings and indicate areas of architectural, equipment, structural and other conflicts and obstacles and coordinate locations of rated and exterior walls to assure their continuity and closure as specified. The Contractor determines that all Work can be installed without interference. In the case of unresolved interference, notify the Consultant. The Consultant will then suggest to the Contractor as to how to revise the Drawings to eliminate interference. The Contractor shall then have the trade(s) revise their respective Drawings to eliminate interference.
vii) Fabrication and installation of Work in a given bay or area shall not proceed until the Contractor has made all trades agree on the exact arrangements for each bay or area. If a given trade proceeds prior to resolving conflicts, then, if necessary, that trade shall change its work at no extra cost in order to permit the other trades to proceed with a coordinated installation. Coordination approval may be given by the Contractor for a bay or area only after site meetings involving all trades have occurred.
viii) In the event of conflict areas without ductwork, each respective trade in conflict shall prepare coordination drawings showing the suggested final arrangements for review.

e) Coordination Drawings are intended for use by the respective trades during construction and shall not be construed as replacing either the shop drawings specified in the technical specifications or the Record Drawings required in the Agreement.

f) Submit Coordination Drawings for review in the same manner as specified for shop drawings. The Consultant's review of Coordination Drawings shall not relieve the Contractor from their responsibilities for coordinating the Work with the work of all trades involved on the Project. The Consultant's review shall not authorize any extra cost, omission and/or deviation from the requirements of the Contract Documents. Any costs arising from errors and omissions in the Coordination Drawings shall be borne by the Contractor.

g) Provide three copies of the Final Coordination Drawing transparencies, and/or electronic files of CADD drawings on CD-ROM at the completion of the work. All copies shall become the property of the Fund.

01 33 29 - Sustainable Design Reporting

When submission of environmental product declarations (EPDs) is required by the technical specifications, in addition to the individual EPD submittals, submit a list summarizing the materials/products covered by each EPD submittal and the estimated total quantities used/installed of such covered materials during the Work completed to date. As directed by the Consultant, the list shall be submitted/updated annually and at Substantial Completion. If the submitted EPDs do not show the kgCO2 per the quantity unit used/installed for a covered material, provide such information upon request of the Consultant. Using the list and other information, the Consultant will calculate the estimated total kgCO2 (kilograms of carbon dioxide) emission equivalent for each covered material/product used/installed.

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. Any temporary overhead protection, fencing, barricades or walkways shall not interfere with access to card readers and ADA access operators. The contractor shall be responsible for any temporary relocation of card readers as a result of the above, if needed.

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:
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) When existing stairs are not available for the Contractor's use, provide a stair when construction Work areas are two stories above or below the exit to staging areas on the adjacent grade. The existing/permanent stairs of the Project may be used by the Contractor if the stairs are in essentially new/repaired condition prior to the Fund's acceptance of the structure. Where the existing/permanent stairs are not available for the Contractor's use, provide a noncombustible temporary stair meeting the following requirements:

d) Prior to starting demolition, to maintain occupied spaces with their current services and utilities, trace all services and utilities, identify their respective areas and zones of service, both within the Work area and outside to Work area. Two weeks prior to start of demolition, submit a written plan for each service and utility describing how such services and utilities will be temporarily maintained, shutdown, disconnected and cut, and/or permanently reconnected. Field tracing, testing and identification of services and utilities that requires their temporary shutdown will be done after hours or on weekends.

    1) The plan should clearly identify any impairment of fire protection system(s), exit signs, exit lighting and/or other code required life safety systems. Add dates and durations of impairments to the Project Schedule.
    2) The Project Schedule should allow for the presence of the Campus Fire Prevention Program Superintendent at the time fire protection system(s), exit signs, exit lighting and/or other code required life safety systems are shut off and at the time such systems are restored to partial/full service.

e) When moving any items (materials, equipment, supplies, tools or other items) through exits, exit access spaces and site areas shared with the Campus during occupied hours, provide radio equipped flagger(s) whose sole responsibilities are: (1) to direct pedestrian and vehicular traffic as required to permit the safe transport of the items from the staging area to the Work area; (2) to inspect the paths traversed to confirm that they are clean, safe and ready for the Campus to resume using; and (3) to confirm that gates, doors, fences, barricades and other temporary controls intended to separate the public from the area(s) controlled by the Contractor are properly restored.

f) Other than materials required for a work shift, storage of materials shall not be permitted in building spaces shared with the Campus. Do not leave any materials, equipment, partially installed work, etc. in a manner that prevents full operational access by the Campus to the spaces outside the areas controlled exclusively by the Contractor. Only the material which can be used in one shift shall be moved into the spaces shared with the Campus. All other material shall be stored in the areas exclusively controlled by the Contractor. During the work shift, materials, tool boxes,

etc. may be dispersed throughout the Work locations shared with the Campus, as required to perform the work, but shall be continuously attended to, neatly organized and located in a manner that does not create tripping hazards and/or reduce the clear travel path of exits and exit access spaces. All tools and excess material, if any, dispersed through the Work locations shared with the Campus shall be collected prior to the end of each shift and moved to the approved staging area.

g) The contractor shall leave the interior building access path to and from the Work areas vacuum clean after the completion of each day's work.

3. Fire safety during construction:

a) If required by the nature of the Work and Campus regulations, the Contractor shall obtain from the Campus and pay all costs associated with "Confined Space Permits" or "Hot Permits" to execute the Work of its contract. Perform hot work in accordance with the Fire Code of New York State and the Hot Work Program approved for the work. Prior to, during and after performing hot work, inspect the hot work area for compliance with the requirements of the permitted Hot Work Program.

https://www.binghamton.edu/offices/environmental-health-safety/permits.html

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 Chapter 33 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

N/A

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

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

2. Special Inspections: This project may contain Work requiring Special Inspections in accordance with the Building Code of New York. The Fund and the Consultant shall exercise control to verify that the construction conforms to the Contract documents. In addition to the requirements of Section 2.17 of the Agreement, cooperate with and provide safe access for inspection and testing agencies, as reasonable to allow inspections and tests to be performed. This will require the Contractor to provide and attend to / operate scaffolding, ladders, or lifts. This project may also contain Work requiring the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting components and the Contractor shall have provisions for quality control.

   a) See the Statement of Special Inspections bound after this Section for the project specific Special Inspections program.
   b) Prior to start of Work that requires code inspections, schedule pre-inspection meeting with the Consultant, Fund and Campus review required inspections and how and when they will be performed.

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

4. In addition to the requirements of Section 2.17 of the Agreement, before performing system tests, partial system tests or scheduling inspections for fire alarm, fire suppression, electrical, mechanical, plumbing, elevator, site infrastructure and other work that must be completed for a Temporary Authorization to Occupy and/or a Code Compliance Certificate, attend pre-test and inspection meetings for each system with the Consultant.

a) Provide a list of all Contractor provided tests that are specified in Divisions 1 through 48, inclusive, and list portions of large systems tested separately (see 01 74 00, Clean-Up, for separation criteria), who will perform a test, when it will be done, who witnessed it and when, results (pass/fail), follow up action, comments and other information requested by the Consultant.

b) The Consultant will review the scope of inspection of the as built installation, review the completeness of the record drawings per Section 2.24 of the Agreement, review the scope applicable tests and review the applicable forms that will be completed as part of the testing and inspection.

c) Immediately after completion of tests, provide original forms with all information filled out plus six copies to the Consultant. Systems required for Substantial Completion will not be considered completed and accepted until all code required forms are completed, submitted and reviewed by Consultant for completeness. For fire protection systems, provide the Statement(s) of Compliance required by Fire Code part 901.2.1.

d) Where portions of systems are completed and ready for testing and inspection, those portions will not be considered completed and accepted until all code required forms are completed to the extent applicable to the portion of Work completed, submitted and reviewed by Consultant for completeness.

e) Where portions of systems are excluded from the portions being tested, provide additional Work required to functionally extend systems around the excluded portions and to fully separate the tested portions from the excluded portions.

f) Schedule testing that requires safety clearance or impacts Campus activities (such as, but not limited to, x-ray testing of welds) and/or testing that requires utility shutdowns for weekends, holidays and/or 2nd or 3rd shift, as appropriate to accommodate the Campus and mitigate disruption to Campus activities.

g) Unless otherwise approved by the Fund, all Contractor provided tests that are specified in Divisions 1 through 48, inclusive, must be witnessed and signed off by the Consultant prior to acceptance of the tested work; and, in the Contract Breakdown required by Section 4.08 of the Agreement, the scheduled value of Contractor provided tests shall be 5% of the amount estimated for the Work being tested.

h) In addition to the above testing, and if mechanical, hot water and/or lighting control systems are included in the work, cooperate with the Consultant to complete the commissioning of mechanical, hot water systems and functional testing of lighting controls. Provide a single competent person as the point of contact for all commissioning required in this contract. As applicable, provide workers, equipment, computer programming, fuel, power, means of access, operating instructions and manuals (see Section 01 78 23) and other work required to demonstrate installation, operation, functionality, calibration and other performance criteria of such systems.

01 41 16 Laws

1. "Diesel Emissions Reduction Act of 2006 (the “Act”):

a. Contractor certifies and warrants that all heavy duty vehicles, as defined in New York State Environmental Conservation Law (ECL) section 19-0323, to be used by the Contractor, its Agents or Subcontractors under this Contract, will comply with the specifications and provisions of ECL section 19-0323 and any regulations promulgated pursuant thereto, which requires the use of Best Available Retrofit Technology ("BART") and Ultra Low Sulfur Fuel ("ULSD"), unless specifically waived by DEC. Qualification for a waiver under this law will be the responsibility of the Contractor.

b. Annually, in the cycle determined by DEC and the Fund, the Contractor shall complete and submit directly to the Fund, via electronic mail, the Regulated Entity Vehicle Inventory Form and Regulated Entity and Contractors Annual Report forms at the Department of Environmental Conservation ("DEC") website for heavy duty vehicles used in the performance of this Contract for the preceding calendar year. Periodically, as requested by the Fund, the Contractor shall certify and submit the Contractor and SubContractor Certifications form, which states that the Contractor will comply with the provisions of Section 20.23.

Website:	http://www.dec.ny.gov/chemical/4754.html
Inventory Form:	https://www.dec.ny.gov/fs/docs/spreadsheets/248inventory.xlsx
Annual Report Form	https://www.dec.ny.gov/fs/docs/spreadsheets/248annrptfrm.xlsx

2. Comply with Labor Law Section 220-h; provide workers certified as having successfully completed the OSHA 10-hour construction safety and health course; and comply with the applicable NYS DOL rules and regulations for monitoring and reporting compliance.

3. Title 10 of the New York Codes of Rules and Regulations (10 NYCRR), Part 4, "Protection against Legionella"
   a. If the project involves the installation or modification to a "Cooling Tower" as defined per the NYCRR, the Contractor is responsible to provide maintenance, testing and reporting. These responsibilities begin upon startup and operation of the "Cooling Tower" or anytime it contains water, it shall continue until the date of the end of the "one-year guarantee period" as defined per Section 2.25 of the Agreement.

      i. The Contractor's maintenance program and testing plan shall be submitted to the Fund, Campus and the Consultant for review and approval.
      ii. The Contractors testing services shall include routine and immediate bacteriological and Legionella culture sampling and analysis as required per the NYCRR. It shall also meet all the requirements in the Campuses "Cooling Tower" maintenance program and plan developed for compliance with 10 NYCRR.
         1. Documentation of all maintenance, testing and reporting of the results shall be provided to the Fund and the Campus.
      iii. Copies of all maintenance and testing records shall be kept on the premises where the "Cooling Tower" is located.

4. Comply with Labor Law Section 220-i, which requires contractors and subcontractors engaged in public work to be registered with the New York Department of Labor.

5. State Finance Law 136-d*2

a. Contractors shall certify for each of the low embodied concrete mixes utilized on the project that they comply with all the requirements listed in contract documents. Submit an environmental product declaration (EPD), and documentation identifying the Global Warming Potential (GWP) for each of the concrete mixes.

01 51 13 Temporary Power for Construction Activities

1. Electrical energy, as/if it exists within the Work area may be used for small power tools, etc. (≤1/2 HP), without metering and at no cost to the Contractor. Usage shall be limited to existing outlets and/or panels within the Work areas shown or as approved by the Campus. The Contractor shall not exceed the capacity of the existing circuits being used. The Contractor shall be responsible for providing all necessary connections, cables, etc. and removal of the same at completion of construction with approval from the Fund. The Contractor shall in no way modify the existing circuits at the panel boards to increase capacities of the circuits. If the required power load exceeds the capacities of the available power sources, the Contractor shall provide and maintain all necessary items to provide temporary power for the project and remove at completion. Install all temporary wiring and equipment and make all connections in conformity with NYS Uniform Fire Prevention and Building Code, National Fire Protection Association, National Electric Code, and all other applicable codes. Make all replacements required by temporary use of the permanent wiring system. Provide ground fault protection.
2. If, for any reason, the permanent power with necessary cable and connections is not available in time to test out the various mechanical and electrical systems of the Project at the time of its scheduled completion, the Contractor shall provide, maintain, and keep in use sufficient temporary power facilities until such permanent power is tied in and fully energized.

01 51 16 Temporary Fire Protection

1. If the existing building is to be partially occupied during the course of the project, all existing exits except those shown for closure, fire walls, fire barriers and fire protection systems shall be continuously maintained in the occupied phases in compliance with the Fire Code of New York State and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material, or other measures must be taken which in the opinion of the Consultant will provide equal safety. Those portions occupied by the Campus must be available for their use 24 hours a day, seven days a week during the Contract period unless otherwise scheduled in these documents. Comply with all applicable State and Federal codes and regulations. Prior to removal of existing fire walls, fire barriers and fire protection systems, if such removal is part of the work, install equivalent temporary fire walls, fire barriers and fire protection systems. The cost of all labor, fire watches, variances, materials, installations, maintenance and removal of such temporary fire protection systems or modifications to the existing systems are the responsibility of the Contractor. Install permanent fire walls, fire barriers and fire protection systems, if provided as part of the work, as soon as practical and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material.

2. Solid fuel salamanders and heaters shall not be used by the Contractor or any of its subcontractors. For all other salamanders used by the Contractor or any of its subcontractors, attend to their operation with competent persons in each space where in use.

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

4. FIRE WATCH REQUIREMENTS (As stated in the campus requirements), here: https://www.binghamton.edu/operations/policies/policy-1004.html

   "A fire watch shall be required and provided whenever cutting or welding is performed in locations where other than a minor fire might develop, or where any of the following conditions exist:
   Overhead welding or cutting is being done.
   Appreciable amount of combustible material in building construction or contents closer than 35 feet to hot operation.
   Observe welding cutting area for at least one half hour after completion of operations and during any lunch or rest period to detect and extinguish possible smoldering fires."

01 51 23 Temporary Heating and Cooling

1. Provide temporary HVAC in the entire Work area(s) as soon as practical. Existing HVAC system, if available, may be utilized to provide some or all temporary HVAC.
   a) When the building or significant portion of the building is enclosed, use temporary HVAC to maintain environmental space conditions within specified parameters, to cure or dry completed installations, to protect installed/existing materials from adverse effects of temperatures or humidity levels, and/or to prevent freezing of hydronic systems.
   b) When the building or portions of the building is unenclosed and as required to properly perform the work, protect existing building/work in place, and/or maintain environmental conditions within specified parameters, provide suitable temporary enclosures, weather protection, additional temporary HVAC, and other temporary work.
2. If an existing HVAC system exist within the Work area, it is available for use by the Contractor. It is the Contractor's responsibility to determine if the existing HVAC will be able to provide the minimum temperature and humidity levels required during the work; otherwise, provide a temporary HVAC system(s) as required to supplement deficiencies in the existing HVAC system.
3. Temporary HVAC shall be installed, extended, modified, operated, and maintained by the Contractor until Substantial Completion.
   a) Where existing HVAC systems in the Work area(s) rely on Campus controlled portions, the Campus will continue to operate and maintain their portions in the same manner performed prior to bidding. With Campus permission, Contractor may rebalance Campus controlled portions.
   b) Where existing HVAC systems outside the Work area(s) rely on Contractor controlled portions, the Contractor will operate and maintain its portions in a manner that properly maintains the service required by the Campus and comply with Section 01 18 13 Utility Shutdowns and Cutovers for planned outages. Unplanned outages shall be addressed in the emergency action plan required in Section 01 35 13 Conducting Work. When directed by the Consultant, rebalance Contractor controlled portions as required to provide proper service to systems outside the Work area(s).
4. Temporary HVAC shall be capable of maintaining temperatures between 68°F to 78°F and relative humidity's below 55%, unless otherwise specified by the Contract Documents. If materials being installed, finished and /or maintained require stricter temperature and relative humidity's ranges per the material manufacturer(s) written recommendations, provide additional temporary HVAC to

provide manufacturer required conditions during the time periods recommended by the manufacturer(s).

5. To monitor and record temperature and humidity levels, provide a minimum of two (2) data loggers per Work area plus one additional data logger for each additional 5,000 square foot of Work area.
   a) The initial location of the data loggers and any relocation required during the progression of the project shall be as directed by the Consultant.
   b) Periodically transfer electronic data, change batteries, and perform other maintenance needed to keep the data loggers functional at all times during the work. Show the locations, date installed, and date moved in records available upon request of the Consultant. Also upon request, provide the electronic data shall to the Consultant.
   c) Data loggers shall be HOBO MX1101 by Onset or equivalent with Accuracy: +/- 0.2C and +/- 2%RH
6. The Contractor is solely responsible for damages to existing/new work, materials and/or equipment within the Work area(s) caused by the failure of the Contractor to maintain the required environmental space conditions temperature and humidity levels. Damaged materials and/or equipment shall be replaced to the satisfaction of the Consultant and at the sole cost and expense of the Contractor.
7. Temporary HVAC systems shall comply with NYS Uniform Fire Prevention and Building Code, National Fire Protection Association, and all other applicable codes.
8. The permanent HVAC system of the Project may be used by the Contractor, with the approval of the Consultant and the Fund, to provide temporary HVAC. In the event the Contractor so uses the permanent HVAC system:
   a) It must place said system in perfect working order and in essentially new condition prior to the Fund's acceptance of the Project.
   b) The period of the guarantee of the permanent HVAC system will commence at the time of the Substantial Completion of the Project.

01 51 26 Temporary Light

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

01 51 36 Temporary Water for Construction Purposes

1. Water for construction is available through the Campus system without charge to the Contractor from location designated by the College. The Contractor shall obtain the necessary permission, make all connections, as required, furnish and install all pipes, fittings and reduced pressure zone backflow prevention device (tested before use), insulate piping, and remove the same at completion of work. The Contractor must provide for waste water discharge and shall take due care to prevent damage to existing structures or site and the waste of water. All pipes and fittings must be maintained to the

satisfaction of the Campus at all times. Temporary water system shall comply with the Fire Code of New York State.

01 52 13 Field Office for the Consultant

1. Coordinate the specific requirements for the field office with the Fund's Construction Unit. This coordination should occur at the constructability meeting held prior to the submission of Construction Documents.

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):

1. Provide supplies as follows:
    a. Provide a service contract for existing photocopiers and printers, including all toner cartridge(s) and monthly service contract for the duration of the job.

The Contractor is not responsible for all expendable office supplies except for those specifically noted above.

01 52 19 Temporary Sanitary Facilities

1. The Contractor shall install, maintain and, at the completion of all Work or at such earlier time as the Consultant may approve, remove temporary sanitary facilities. From the commencement of Work until the frame of the structure, if the Project involves a structure, is erected, such facilities shall be of the chemical type, shall be placed at locations approved by the Consultant and shall be screened from the Campus population/public. As soon as the frame of the structure has been erected, water supply and sanitary drainage connections shall be promptly made by the Contractor and temporary toilets, using the permanent piping system of the structure, shall be installed by the Contractor and maintained by it until completion, at which time they are to be removed by it. Permanent toilets and room finishes installed under the Contract shall not be used during construction of the Project unless the Contractor has an approved plan for periodic custodial services that maintain toilets and finishes in like new condition until their acceptance by the Fund.

a. The amount of sanitary facilities required shall be based on the total number of workers employed on the Project and shall be in accordance with the provisions of the Health and Sanitary Codes of the State of New York. Maintain all units in a clean and sanitary condition. At the minimum, clean on a weekly basis, and more often as required by the applicable sanitary codes for this occupancy. Provide all toilet supplies as required, including toilet paper, soap, paper towels, and waste receptors.

01 54 13 Use of Elevator(s) for Construction

1. When approved by the Consultant, the Contractor shall be permitted to make temporary use of elevators installed during the Work (if any) and existing elevator(s) designated by the Campus (if any), provided such use does not interfere with the normal activities of the Campus or exceed the capacity of the elevator(s). Use of elevators is limited to the Couper Administration Building only, from the lowest grade level up to the 7th floor.

2. The use for construction purposes is a new use that was not contemplated during the design of a new elevator and/or the previous acceptance inspection of an existing elevator performed for the Campus.

In accordance with 8.10.5.10 of ASME A17.1, prior to using an elevator for construction, provide an inspection to confirm that the elevator installation supports the proposed new use.

3. Large and heavy items shall not be placed in elevators, and suitable padding shall be provided whenever a cab is used for construction purposes. Elevator pits shall be kept free of debris and dust by frequent cleaning out.

4. The elevators shall be maintained and restored to original condition satisfactory to the consultant and the Fund at the end of construction activities. If existing elevator(s) are used during construction, provide additional inspections and maintenance required due to construction usage. Prior to use for construction purposes, contact the existing elevator maintenance vendor and arrange for performance of the additional maintenance required due to construction usage**.**
5. If the elevator is used during construction, provide periodic inspections, as required by in accordance with Table N1, Appendix N, of ASME A17.1. Acceptance and periodic inspections shall be performed by an independent ASME A17.1 Qualified Elevator Inspector employed by a firm specializing in elevator inspection paid for by the Contractor.

6. If the project includes a new elevator(s), it may be used for construction purposes (other than elevator related construction and maintenance) when approved by the Consultant and at the point in completion of the Work when the Contractor demonstrates that there is no reasonable temporary hoist option. Submit a written request for approval describing the construction purposes, usage, loads**,** periodic maintenance, inspections, anticipated wear due to usage, emergency usage plan (if required by the local fire department), and other information that may be requested by the Consultant. Attach to the request a letter from an independent ASME A17.1 Qualified Elevator Inspector (employed by a firm specializing in elevator inspection paid for by the Contractor) recommending the proposed use(s).

    a) Immediately prior to the end of the construction use and maintenance period, clean all portions of the shafts, exterior of hoists, machine rooms and other areas accessible only to elevator technicians.

    b) Do not install the permanent flooring in the elevator until directed by the consultant.

    c) Prior to the end of the construction use and maintenance period, inspect all portions of the elevator systems, shafts and other work required for proper elevator operation in the presence of staff from the firm providing maintenance for the Campus and perform corrective work, if any, identified during this inspection prior to the end of the maintenance period.

    d) Update operating system firmware and other software to the latest applicable versions.

    e) If the a new elevator is used by the Contractor for construction purposes, it shall also be made available for use by the Campus during installation of its furniture, fixtures and equipment (as further described in Section 01 11 13, Coordination with Other Contracts), unless such Campus use is inconsistent with the contractor's use as permitted in 8.10.5.10 of ASME A17.1 and contrary to the written recommendations of the Contractor's ASME A17.1 Qualified Elevator Inspector.

01 55 19 Temporary Parking

1. Unless otherwise specifically noted, there is no free parking available on Site. The Contractor and its employees shall be subject to all the rules and regulations of the SUNY Campus, including parking regulations. Parking violations are subject to fines and are the sole responsibility of the Contractor or its employees. 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.

    a) Refer to Campus General Requirements for additional information.

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 incompliance with all applicable federal and state rules and regulations, including EPA rule 40 C.F.R. Part 112. The Campus may add the contractor's certification(s) to their Oil Spill Prevention Control and Countermeasure (SPCC) Plan as an amendment. This certification shall be provided to the Fund two weeks ahead of any product or container(s) delivery and the Campus shall be notified promptly of the removal of any container(s).

9. Prior to utilization on this project, the locations of cranes, mixers, boom trucks, forklifts, welding machines, generators, field offices, workbenches, cutters, hose lines, etc., must be reviewed in a pre-installation meeting with the Consultant. In addition, submit a complete lifting procedure safety plan, operator’s license, an annual inspection report, and a current inspection certificate for each crane, boom or lift proposed. Prior to and during any lifting, properly erect, remove, maintain and replace any required safety and/or traffic barriers.
10. Provide a chain link fence around staging, storage, parking, etc. areas that is 8’-0” high. Cover all fence fabric with black closed mesh woven polypropylene with 95% blockage and finished with binding and grommets. Reinforce posts and add additional posts and braces as required to support the additional wind load created by installation of the fabric. Secure fabric at 2'-0" by 2'-0" grid intervals and inspect and repair all attachments points monthly. Tears or holes greater than 6" in one dimension shall be

repaired weekly. Minimum post size shall be as required for a 70 mph wind. Gates shall be a minimum of 20 feet across, double swing leaves with a drop rod to secure them in place while in the closed position. All gates shall include heavy duty padlocks, keyed alike, with 10 spare keys for each given to the Consultant for distribution. Provide continuous top and bottom rails. All areas within the fence shall have all grass, weeds, etc. mowed when it exceeds 6" in height. Contractor shall clear snow as necessary within fenced areas. Snow from within the fenced areas shall be moved outside the fenced areas, transported and legally disposed of offsite. Snow outside the Contract Limits will be removed by the Campus. Set fence posts and supports in the manner that facilitates the removal of snow by the Campus. True and plumb the fence posts on a monthly basis.

11. Use of Site: Limit use of Project Site to areas within the Contract limits indicated. Do not disturb portions of Project Site beyond areas in which the Work is indicated. The use of drone(s) during Work on Site is contingent on written approval from the Campus.

12. Contractor shall clear extraneous matter (snow, precipitation, wind bourn organic matter, bird/animal carcasses, etc.) from Work areas as necessary to perform work. Extraneous matter from within the Work areas shall be moved outside the Work areas, transported and legally disposed of offsite. Extraneous matter outside the Contract Limits will be removed by the Campus.

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

1. The Fund is the "Operator" in accordance with the "SPDES General Permit for Stormwater Runoff from Construction Activity, GP-", as currently amended, and has obtained the specific permit for this project.

2. The Contractor and applicable subcontractors shall certify acceptance of the approved Storm Water Pollution Prevention Plan (SWPPP), provide supervision by individual(s) employed by a company who has attended a DEC-endorsed 4-hour Erosion and Sediment Control Training, provide a Trained Inspector during all periods of earth disturbance to perform the required inspections, and provide daily actions and modifications required to comply with the permit.

3. Provide the erosion and sediment controls and best management practices required to prevent soil or vegetative materials from leaving the Contract Limit Lines due to erosion by wind or water. For compliance with this permit, the Contract Limit Lines shall include the entrances to the existing and proposed storm sewer system shown on the documents. Attend a pre-construction meeting to discuss SWPPP compliance with the Campus and the consultant.
   a) Provide a Qualified Inspector to provide weekly inspections, provide written reports, and notifications to the Owner as applicable.
   a) The Owner will retain an independent Qualified Inspector to provide weekly inspections, provide written reports, and notifications to the Owner as applicable.

   b) The Contractor shall schedule and sequence the Work so that the exposed, unprotected surface area of any earth material that is subject to erosion by wind or water will be kept at a minimum. At all locations, initiate the installation of permanent erosion control work at the earliest possible time prior to and during construction work. Submit plans documenting significant modifications to the SWPPP, as required to accommodate the preferred means and methods employed, at least two weeks prior to starting any field work.

   c) All material eroded by wind or water from within the Contract Limit Lines shall be retrieved by the Contractor. All siltation deposits in storm sewers, surface waters streams or wetlands resulting from the discharge water from the project Site shall be removed to restore profiles and conditions to that existing prior to the commencement of the work. All catch basins within the Contract Limit Lines shall be cleaned prior to the start of site work and upon completion of the project.

   d) The Contractor shall keep traveled ways outside the Contract Limit Lines free of foreign objects and other items that may fall from vehicles. Promptly remove materials spilled or dropped from the undercarriage or wheels of any vehicle traveling along or across any such way.
   e) Disturbed areas or stockpiled materials that will not be restored or redistributed within 21 days shall be stabilized within 14 days by use of mulching, seeding, geo-textile fabric or other approved methods.

01 58 13 Project Sign

N/A

01 60 00 10 U.S. Steel

1. All structural steel, reinforcing steel, or other major steel items to be incorporated in the Work shall, if this Contract is in excess of $100,000, be produced or made in whole or substantial part in the United States, its territories or possessions. Upon request from the Consultant, provide information from suppliers, fabricators and installers identifying the place of manufacturer and the country of origin for all steel items incorporated into the work.

01 60 00 20 Non-Asbestos Products

1. All materials specified herein shall contain no asbestos.
2. Provide "Contains No Asbestos" permanent labels applied to the exterior jacket of all pipe insulation at 20 foot intervals with a minimum of one (1) label for each service in each Work area.
3. The use of vermiculite in products and systems installed in the Work is acceptable if the product /system manufacturer provides the MSDS sheet showing that no asbestos is present and submits a certification of the origins of the vermiculite showing that it is not from a mine contaminated with asbestos.

01 60 00 30 Products

1. All products shall be new and installed on the project within one year of manufacture, and no recycled, reconditioned, or reused products shall be used unless expressly noted otherwise in the technical specifications.

01 64 00 Campus-Furnished Products

NONE

01 66 00 Equipment Storage and Handling Requirements

1. Store equipment in accordance with the manufacturer’s recommendations, including, but not limited to, providing anti-condensation heaters for electrical or other equipment, or other temporary measures to mitigate impact of environmental conditions in the storage location when such conditions vary from manufacturer recommendations. In addition to the requirements of the technical specifications and Sections 4.13 and 4.14 of the Agreement, for equipment that is stored, delivered and/or installed for Work not yet accepted by the Fund, provide and maintain a preventive maintenance log (Log) that documents maintenance activities performed. (See Sections 4.13 and 4.14 of the Agreement, which requires the Contractor to perform these maintenance activities.)

2. In the Log, list equipment individually. For equipment listed, list the manufacturers’ recommended maintenance activities; recommended maintenance tools, lubricants, parts and other items needed to perform maintenance; recommended frequency for performing maintenance activities; the qualifications of the workers performing the maintenance activity; anticipated/scheduled dates for performing the maintenance activity; the actual date the maintenance activity was performed; the name of the Contractor’s employee who supervised performance and other information requested by the Consultant. See sample layout below:

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

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

01 71 23 Field Engineering

1. In addition to Section 2.24 of the Agreement, employ an independent Land Surveyor (a person not in the regular employment of the Contractor or having any vested interest in the Contractor's business), licensed to practice in the State of New York, for the duration of the Work, to supervise and certify the accuracy of the survey work, including the following:

   a. During the work, submit progress copies for use in Section 01 33 23 20 "Coordination Drawings" and when requested by the Consultant. Upon completion of the Work, submit a certificate signed and sealed by the Land Surveyor, stating that the elevations and locations of the Work are in conformance with the Contract Documents.
   b. Maintain a complete and accurate log of control and survey work as it progresses. Utilize recognized engineering survey practices. Furnish all tools, equipment, and materials required to perform the work.
   c. Verify locations of control points prior to starting work. Control datum for survey is indicated on the Drawings. Confirm permanent survey markers to be used as benchmarks for vertical control on the Site where indicated on the Drawings and referenced to established control points. Record locations, with horizontal and vertical data to within one one-hundredth of a foot, on Project Record Documents.
   d. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means.

2. Survey and record locations of site improvements including utility locations and invert elevations and

a. Power distribution and drainage structures: provide as built inverts at each end of each pipe or conduit.
b. Pipes and conduits ending without structures: provide as built inverts at each end of each pipe or conduit.
c. Structures: as built centerlines and frame elevation.

3. Survey and record locations of building improvements within one week of erection, or as approved by the consultant, including:

a. In all multiple-story construction, the Contractor shall establish and maintain line marks at each floor level and grade marks four (4) feet above the finished floor at each floor level.
b. Grid, perimeter and axis for structures.
c. Building foundation perimeter, column locations, and floor, roof, pit and sump elevations.
    i. Provide as built centerlines and perimeter of columns and piers.
    ii. After the placement of concrete on each level, provide spot elevations on each level on each point of a 10-foot by 10-foot grid starting at the northeast corner of each floor. Show contours at one tenth of a foot where applicable.
    iii. Perimeter of all floor opening locations relative to structural grid.
    iv. After completion of the roofing membrane, provide spot elevations on each level on each point of a 10-foot by 10-foot grid starting at the northeast corner of the building. Show contours at one tenth of a foot where applicable.

d. Inverts of foundation and under drain piping at sumps and cleanouts.

e. For horizontal storm drainage piping suspended below decks, underside elevation spaced at not more than 10 feet on center.

01 71 36 Non-Destructive Building Examination

1. Prior to drilling, coring, cutting or demolishing existing or previously installed substrates, such as concrete and masonry, employ an experienced firm to investigate and locate items concealed in substrates that may be impacted by the work. Locate items such as reinforcing bars, tendons and other structural steel; conduits, piping, ducts and other concealed trade work; voids, substrate thickness and layers; and other concealed conditions within the substrates. Locate by scanning existing substrates with a radar system having a 2.7 GHz antenna (or equivalent system appropriate for the work). As concealed items are discovered and as needed to coordinate with new work, mark out location of such items on the substrate surfaces. Record and save all electronic data acquired during the scanning. If conditions are discovered that differ substantially from those anticipated, provide all electronic data to the Consultant with the notice required by Section 2.12 of the Agreement.

01 73 00 10 Information required for Rebates, Grants, Awards and/or other Programs

1. In addition to Section 4.11 of the Agreement, for the Work listed below, provide invoices, receipts and other documents from suppliers, subcontractors and others to whom the Contractor has allotted any portion of the work. Such invoices, receipts and other documents shall be originals as provided by the suppliers, subcontractors and/or others. In addition, all invoices, receipts and other documents shall have the complete and proper

information required for the applicable rebate, grant, award or other program. To avoid withholding of progress payments, submit samples of invoices, receipts and other documents showing the required information and revise samples as directed by the Consultant.

01 73 29 Cutting, Patching and Repairs

1. The Contractor shall do all cutting, fitting, and patching of its Work that may be required to make its several parts come together properly and fitted to receive or be received by work of other Contractors as shown upon or reasonably implied from the Drawings and Specifications for the completed project.

2. Any cost caused by defective or ill-timed Work or service disruption shall be borne by the party responsible therefor. Except as otherwise expressly provided in the Contract Documents, the Contractor shall not cut or alter the work of any other Contractor or existing work without the consent of the Consultant and the Fund.

3. Existing construction finishes, equipment, wiring, etc., that is to remain and which is damaged or defaced by reason of Work done under this Contract shall be restored by the Contractor to a condition satisfactory to the Fund, or replaced with new, at no additional cost.

4. Existing surfaces, materials, and Work shall be prepared as necessary to receive the new installations. Such preparatory work shall be as required by the conditions, and in each case shall be subject to approval by the Consultant and the Fund.

5. Newly exposed work or surfaces which are presently concealed shall be made to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the Consultant and the Fund.

6. All new, altered, or restored Work in the building and on the Site shall match existing corresponding work in the material, construction finish, etc., unless otherwise specified or required by the drawings.

7. Holes, openings, gaps and voids created by removals shall be filled solid to match existing corresponding or adjoining new surfaces as directed, and the materials and methods to be employed shall be subject to approval by the Consultant and the Fund.

8. Do not cut and patch structural elements in a manner that would reduce their load carrying capacity or load-deflection ratio. Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

9. If possible, retain the original installer or fabricator employed under this Contract to repair, cut and patch exposed Work or, if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm acceptable to the Consultant.

10. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required to minimum disturbance of

adjacent surface. Temporarily cover openings when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

11. Where removal of walls or partitions extends one finished area into another: Patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance; Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance. Where patching occurs in a smooth painted surface: extend final paint coat over entire unbroken surface containing the patch, after the patched area has received.
12. Where the extent of patching of portions of the Project is significant and the need for this significant patching is due to the Contractor's means and methods, skill and labor, equipment operations, sequence of trades, lack of temporary protective facilities and/or other actions during the performance of the work, then the significant patching shall be replaced with new work.

    a. The Consultant will determine if patching must be replaced with new work using the following process.

        i. Step 1: The Consultant will evaluate the risks associated with the Patching (such as water or water vapor infiltration into the work), the esthetic impact of visible Patching, the impact that Patching has on future maintenance, custodial or other Campus operations and/or other objective criteria that it may deem reasonable during the evaluation of the Patching. Based on this evaluation, the Consultant may recommend moving on to Step 2.

        ii. Step 2: The Consultant will count and measure the amount of Patching using the most reasonable unit of measurement applicable. The sum of these counts and measurements will be the total amount of Patching.
            1. The Consultant will determine the overall limits (Limits) of the portion of the Project with the Patching. The Limits will include all the Patching counted and measured above plus reasonably adjacent portions of the Project that may be without Patching.
            2. The Consultant will measure the Limits using same unit of measurement used to measure the Patching. This quantity will define the extent of the Limits of the portion of the Project with the Patching.
            3. Using the figures calculated above, the Consultant determines the number of Patches and the percentage of Patching that exists within the Limits. The Work within Limits shall be replaced with new Work if:
            4. If the number count of Patches within the Limits exceeds 2 (two) per 100 (one hundred) square feet (or other appropriate unit of measurement), or
            5. If the percentage of Patching exceeds 15% (fifteen percent) within Limits.

    b. The Consultant will determine the reasonable extent and type of Work required to replace the Patching and issued detailed drawings and instructions to the Contractor for its use in completing the corrective work.

01 74 00 Clean-Up

1. Periodic Cleaning: The Contractor shall at all times during the progress of the Work keep the Site free from accumulation of waste matter or rubbish and shall confine its apparatus, materials and operations of its workers to limits prescribed by law or by the Contract Limit Lines, except as the latter may be extended with the approval of the Consultant and the Fund. Provide cleaning and waste disposal in accordance with the Fire Code of New York State and as required by NFPA 241 and as recommended in its Annex A, Explanatory Material. Cleaning of the structure(s), once enclosed, must be performed daily and removal of waste matter or rubbish must be performed at least once a week unless more frequent performance is required by NFPA 241 and recommended in its Annex A, Explanatory Material.

    a. If open topped dumpsters are within 35 feet of any structure, empty and remove combustible contents from these dumpsters at the end of each shift.

    b. Provide periodic pest and vermin control as required to deliver the completed building completely free of any infestation.

    c. Waste Disposal: Do not dispose of, bury, or burn waste materials on-Site. Grinding of concrete, asphalt or masonry for disposal shall not occur on-Site. Do not wash waste materials down sewers or into waterways.

    d. Demolition and removal Work on Site shall be limited to the minimum work required to create debris that allows for reasonable handling and transport. Additional work on debris, such as grinding, cutting or crushing, which may be desired by the Contractor to make the material ready for reuse off-site, shall be performed off-site.

    e. Prior to installation of ceilings, inspect all above ceiling areas and leave the completed above ceiling work and areas without the need of further cleaning of any kind and with all Work in new condition and perfect order.

    f. In addition to and in coordination with testing and cleaning specified in Divisions 2 through 48 inclusive, periodically flush and clean air and fluid new and existing systems in portions (sections) as the Work is installed. Flushing and cleaning of existing systems is limited to portion modified in this Work and portions shut down by this project (dead legs), where such portions were left without flow. Such dead legs shall be flushed and cleaned prior to restoration of use.
        i. Submit a flushing and cleaning plan to the Consultant for approval prior to beginning installation of a system.
        ii. Unless otherwise approved by the Consultant, select portions of systems for cleaning in a manner that limits the maximum size of a portion cleaned in a single effort to an individual riser, to individual floor system and to not more than 1,000 linear feet in length of the installed portion of a riser or individual floor system, whichever is less.
        iii. Where portions of systems are excluded from the portions being cleaned, provide all additional Work required to functionally extend systems around the excluded and/or uncompleted portions and to fully separate the portions being cleaned from the excluded and/or uncompleted portions.
        iv. Unless otherwise approved by the Consultant, fully separate fixtures, appliances, and equipment from the portions being cleaned by providing all additional Work

required to functionally extend systems around the excluded fixtures, appliances, and equipment and to fully separate the portions being cleaned from the excluded fixtures, appliances, and equipment.

v. Provide temporary means for providing and moving air and/or fluid at the rate required to flush and clean the portions of systems being cleaned unless use of permanent equipment is specifically approved by the consultant. If the permanent equipment is permitted to be used, provide a letter from the manufacturer's technical representative agreeing to such use, stating that its use shall not limit their warranty and excluding the time their system is used from the project specific warranty period. See 01 78 36, Warranties, for additional requirements.

vi. Capture, treat and legally dispose of air and fluid discharges, effluent and any materials cleaned from a systems or portions of a system. When approved by the consultant, the Campus sanitary system may be used to convey discharges if the local treatment facility provides written confirmation to the Contractor that it will accept such discharges.

g. In addition, during the course of the work, the Contractor shall remove dust, debris, rubbish, and other materials scattered and dispersed from its Work area into other spaces, sites, equipment or materials owned or controlled by others. Engage qualified firms and competent workers to restore the use or appearance of such spaces, sites, equipment or materials to their original condition and to the satisfaction their owner or controller. If such scattering or dispersal occurs, provide qualified workers during all periods of subsequent Work to provide daily monitoring, containment, continuous cleaning, and other actions or modifications to work activities as required to mitigate future scattering or dispersal.

h. Provide and maintain sweeping compound to assist in daily cleanup as needed for the duration of the project. Provide, maintain and replace as necessary general use construction push brooms (soft bristle), construction push brooms (course bristle), heavy-duty, flat edge shovels and dustpans.

2. Final Clean Up: Upon completion of the Work covered by the Contract, the Contractor shall leave the completed project ready for use without the need of further cleaning of any kind and with all Work in new condition and perfect order. At least two weeks prior to the start of Final Clean Up, submit a written implementation plan describing cleaning methods, staff, sequence and schedule of activities and other information requested by the Consultant. In addition, upon completion of all work, the Contractor shall remove from the vicinity of the Work and from the property owned or occupied by the State of New York, the State University of New York or the Fund, all plant, buildings, rubbish, unused materials, concrete forms and other materials belonging to it or used under its direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the Work to their original condition, and, in the event of its failure to do so, the same shall be removed by the Fund at the expense of the Contractor, and it and its surety shall be liable therefor.

01 74 16 Payment for Planting Maintenance

Not applicable

01 74 19 Construction Waste Management

1. In addition to the requirements of the above Sections 01 35 13, Conducting Work, and 01 74 00, Clean Up, implement a construction and demolition (C&D) waste management plan which recycles at least 50% of the non-hazardous building C&D waste generated.
    a. In conjunction with monthly payment applications, submit a waste management reporting form for all materials transferred from the project site for recycling or disposal. Reporting form shall:
        i. Include receipts or other documentation from the disposal and/or recycling facility of the quantity and type of materials transferred.
        ii. Provide the name and address of the disposal facilities and/or recycling facilities where materials will be disposed or recycled.
        iii. Report all the material quantities either by weight or volume. To convert volume into weight use the US EPA conversion rates.
        iv. Provide documentation for materials or equipment to be removed from the site for sale or reuse, or turned over to the Campus, which are classified as recycled materials. Documentation shall include the description of the materials or equipment, weight or quantity of materials or equipment, and a receipt for the sale, a letter on Contractor's letterhead indicating the reuse or the Campus' signed receipt of materials or equipment, and the applicable fee(s) paid or payment(s) received.
        v. Show the percentage of recycling achieved to date.
    b. Within 30 days after Substantial Completion, submit the total quantities for all C&D and the percentage of materials which were recycled.
    c. Any money received by the Contractor for materials recycled, sold or reused off site was considered when the Bid Proposal submitted to the Fund and may be retained by the Contractor. The Contractor is solely responsible for the security of any materials that may be recycled, sold, or reused.
2. For all construction and demolition waste that leaves Campus with a manifest, provide copies of manifests in the monthly reports. For each manifest that requires the Campus EPA ID number as the generator of the waste, submit a draft copy for the review by the Campus, make any reasonable corrections that the Campus requests, and allow one week for the Campus to review and sign each completed manifest.

01 75 10 Consumables used during the Work.

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

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

1. O&M's Submissions

a. The O&M's applicable to this Contract must be substantially completed before the Project can be used for the purpose for which it was intended.
b. In accordance with the approved submittal schedule in Section 01 32 16 Project Schedule, provide the applicable O&M's as required per the Submittal sections of the Technical Specifications for review, concurrent with all other required submittals.
c. Assemble and submit final O&M's prior to requesting inspection for Substantial Completion and at least 45 days before the training detailed in section 01 79 00 Training of Campus Personnel and the applicable Technical Specifications. Consultant and Commissioning Authority (CxA) will provide comments on the final O&M's within 15 days of receipt.
    i. Correct or revise each manual to comply with Consultants and CxA's comments. Submit copies of each corrected O&M's within 15 days of receipt of the Consultant's and CxA's comments and at least 15 days prior to commencing training detailed in section 01 79 00 Training of Campus Personal and the applicable Technical Specifications.
d. Unless otherwise approved by the Fund, in the Contract Breakdown required by Section 4.08 of the Agreement, the scheduled value of Contractor provided O&M's shall be 5% of the estimated value for the Work covered in the O&M's
e. The Contractor shall furnish two (2) complete bound paper copies and PDF/A files of O&M's for all systems, subsystems, and pieces of equipment involved in the Contract. O&M's include definite and specific instructions on the proper operation and maintenance of the systems. The requirements of this section are in addition to the requirements of Section 01 33 23 Shop Drawings and Samples.
    i. PDF/A copies shall be stored and labeled on four (4) sets of archival optical discs, Universal Serial Bus (USB) flash drives or other electronic data storage devices approved by the Consultant. All documents shall be indexed, text searchable, navigable format. PDFs created by scanning are not acceptable unless all images of text are properly and completely transformed into the electronic characters representing the text.
f. Final copies shall be complete except for copies of original warranties and other items approved by the Consultant for turnover on the date of Substantial Completion.

2. General requirements for O&M's:
    a. Organization: Organize the O&M's into separate volumes/sections by CSI number based on the table of contents of the Project Manual, for each system and subsystem, and a separate section for each piece of equipment not part of a system. Arrange content within volumes/sections alphabetically. Each volume shall contain the following materials, in the order listed:
        i. Title Page.
        ii. Table of Contents.
        iii. Volume Contents:
            1. Operation Data.
            2. Product Maintenance Data.
            3. Systems and Equipment Data.
    b. Title Page: Include the following information:
        i. Subject matter included in volume
        ii. Name and address of Project and Owner

iii. Date of submittal
iv. Name and contact information for:
1. Contractor and Major Subcontractors.
2. Construction Manager.
3. Consultant and Major Subconsultant.
4. Commissioning Agent.
5. Cross-references to related system in other O&M's

c. Table of Contents: List each product included in O&M's, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
i. If O&M's documentation requires more than one volume to accommodate data, include a comprehensive table of contents for all volumes in each volume of the set.

d. Volume Contents: Organize into sets of manageable size. Arrange contents alphabetically by CSI number, system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single volume.

e. Manufacturers' Data: Where O&M's contains manufacturers' standard printed data: include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data includes more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
i. Prepare supplementary customized narrative text if manufacturers' standard printed data are not available or where project specific information is necessary for proper operation and maintenance of equipment or systems.

f. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of standard component parts of equipment and systems and to illustrate actual control sequences and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
i. Do not bind as part of O&M's the Record Drawings provided in accordance with Section 2.24 of the Agreement.

g. When multiple binders are required, use the same type and size of binder for each volume

h. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs:

i. Use 8-1/2 x 11-inch text pages bound in spring post binders with durable plastic covers and sides identified with printed titles "OPERATION AND MAINTENANCE MANUALS", title of project, and subject matter of binder. 11 x 17 paper may be used if each page is folded three times to fit the 8-1/2 x 11 format

3. Operation Data
a. Content: Organize Operation Data into a separate section, within the O&M's.

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

4. Product Maintenance Data
    a. Content: Organize Product Maintenance Data into separate section, within the O&M's, for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

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

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

i. Test and inspection instructions.
ii. Troubleshooting guide.
iii. Precautions against improper maintenance.
iv. Disassembly; component removal, repair, and replacement; and reassembly instructions.
v. Aligning, adjusting, and checking instructions.
vi. Demonstration and training video recording, if specified.

e. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
    i. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
    ii. Maintenance and Service Record: Include manufacturers' forms for recording maintenance and inspection.
f. Spare parts list and source information: Include list of replacement repair parts, with parts identified and cross referenced to manufacturers' maintenance documentation and local sources and maintenance materials and related services.
g. Warranties: Include copies of warranties and list of circumstances and conditions that would affect validity of warranties.
    i. Include procedures to follow and required notifications for warranty claims.

01 78 36 Warranties

1. In addition to the requirements of Section 2.25 of the Agreement, provide warranties for products, equipment, systems and installations required by other technical sections of Contract Documents for duration indicated. Warranties shall be individually listed in the project specific submittal log required by 01 33 23, Shop Drawings and Samples.

    a. All warranties required by Contract Documents shall commence on date / time of Substantial Completion shown on Page A-1 of the Agreement.

        i. At no additional cost to the Fund, for products, equipment, systems and installations completed prior to the date of Substantial Completion, obtain and pay for warranty extensions that cover the additional time between the earlier date of their completion and the date of Substantial Completion.

    b. Provide a list of all Contractor provided warranties that are specified in Divisions 1 through 48, inclusive, and list who will inspect the Work covered by the warranty (if applicable), when it will be done, who witnessed it and when, results (pass/fail), follow up action, comments and other information requested by the Consultant.

        i. Unless otherwise approved by the Fund, all inspections must be witnessed and signed off by the Consultant prior to acceptance of Contractor provided warranties that are specified in Divisions 1 through 48, inclusive.

        ii. The Consultant will reject a Warranty issued prior to or without the manufacturer's field inspection of the work, if required in Divisions 1 through 48, inclusive.

c. Unless otherwise approved by the Consultant and if required in Divisions 1 through 48, inclusive, the scheduled value of a Contractor provided warranty in the Contract Breakdown required by Section 4.08 of the Agreement shall be 5% of the amount estimated for the Work being warrantied.

d. Furnish and organize original warranties in a separate binder with a durable plastic cover. Organize the binder into separate sections by CSI number based on the table of contents of the project manual. Internally subdivide the binder contents with permanent page dividers, logically organized as described below, with tab titles clearly printed under reinforced laminated plastic tabs. Provide a printed Table of Contents.

   i. Warranties shall be in the form required by the applicable technical sections of Contract Documents. Include procedures to follow and required notifications for warranty claims.

   ii. Warranty Certification: Written certification from the warrantor that the warranty is in effect and non-retractable due to any of the specified conditions. Warranties submitted without warranty certification will not be accepted.

   iii. Deliver the binder to the Consultant with the written notice of Substantial Completion required by Section 2.23(2) of the Agreement.

e. For uncompleted Work delayed beyond date of Substantial Completion, provide updated binder submittal within 10 days after acceptance, indicating date of acceptance as start of warranty period for any Work delayed beyond date of Substantial Completion.

2. Applications for payment after the date of Substantial Completion may not be approved until the warranty certification and warranty documents are delivered to the Consultant.

01 78 39 Project Record Documents

1. In addition to Section 2.24 of the Agreement, provide the Records Information required by Fire Code part 901.6.3.1 and the Operating Adjustments and Instructions required by Mechanical Code part 1004.7.

01 79 00 Training of Campus Personnel

1. Training of Campus personnel in the use of the Work of this Project must be substantially completed before the Project can be used for the purpose for which it was intended. The information required by Section 01 78 23 Operating Instructions and Manuals is required for training to occur and be completed.

2. The Contractor shall be responsible for training coordination and scheduling and ultimately for ensuring that training is completed. A draft schedule of all training shall be submitted three months prior to any training and finalized one month prior to the actual training. In addition to these general requirements, additional specific training requirements of Campus personnel by the Contractor are specified in other the applicable specifications. The Campus will designate the personnel who will be trained, and some personnel may not be direct employees of the Campus.

3. The Contractor shall provide individual training sessions for each piece of equipment furnished under this Contract. The Contractor shall provide factory authorized representatives for each training session. Training shall include operation and maintenance, preventative maintenance and troubleshooting. Operation and maintenance manuals shall be furnished to the Campus personnel three weeks prior to the associated training session.

    a. The Contractor shall schedule all training sessions. A minimum of 48-hour notice is required for scheduling. Training for each piece of equipment shall be provided in two separate sessions for each shift, one week apart. Each training session shall be no less than four hours in duration (total of 8 hours training per shift for each piece of equipment).
    b. The Contractor shall provide an additional four-hour refresher training session. The refresher training shall be provided three months after the respective equipment has been accepted.

4. The Consultant shall review and approve an outline of the content and adequacy of the training of Campus personnel for the equipment. The outline will be reviewed for content to ensure adequate coverage of the material. The Contractor will be required to revise the outline and training session based on comments by the Consultant. After approval of the training outline, submit draft PowerPoints (or equivalent) for the training. These project-specific PowerPoint presentations will integrate photos of as-built conditions, images of project specific diagrams and project specific visual cues for applicable systems. The Campus shall be responsible for providing the appropriate personnel at each session. Sessions once held may not be repeated, unless deficient or improperly taped, without additional cost to the Contractor. Contractor shall assign a person other than the training session instructor to operate the videotaping equipment. Tape of the first session shall be reviewed immediately with the Consultant to confirm that the taping method provides suitable, clear documentation of the training session, and shall become the sample against which all future tapes are judged. Tapes with substantial deficiencies, as compared to that sample, shall be redone in a repeated session of training. Tapes shall be copied for insertion into each manual and shall be indexed and titled as to their contents with type written labels. The Campus personnel in attendance shall be documented with a sign in sheet for each session, to be included in the O & M Manuals. Attendance sign-in shall constitute their certification that full training in the subjects was covered. Where training occurs off Campus, provide confirmation vouchers showing attendance paid in full.

5. Refer to technical specification sections for additional training.

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

PROJECT No. 071108-00

Contractor Job #:

Project Name: Binghamton University
Replace Roofs – Admin & Health Svces

Revised By:

DATE:

line No.	Contract or ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal
1		00 52 00	Section 2.18		List of Subcontractors
2		00 52 00	Section 2.12		Site Conditions
3		00 52 00	A-Sec 2.24(3)		Record Drawings
4		00 52 00	A-Sec 3.06		Monthly Reports
5		00 52 00	A-Sec 4.08		Schedule of Values
6		00 52 00	A-Sec 6.07-1		MBE/WBE Monthly Utilization Reports (online only)
7		00 52 00	A-Sec 2.06		Superintendent Submission
8		01 18 13			Utility Shutdown Schedule
9		01 26 13			Request for Information (RFI) log
10		01 29 00 10			Meter readings
12		01 31 13 10			Existing Conditions reports
11		01 31 19			bi-weekly reports
13		01 32 13 10			Off campus street access
14		01 32 16			Project Schedule and Submittal Schedule
15		01 32 33			Project Photographs
16		01 33 23			Submittal management website
17		01 33 23			Archival submittals
18		01 33 23 10			Coordination Drawings
19		01 33 29			Sustainable Design Reporting
20		01 35 13			emergency action plan
21		01 35 13			daily reports
26		01 35 13			ID Badge Format
27		01 35 13			daily manpower counts
28		01 35 23			Safety Procedures Manual
29		01 35 23			Names of "competent" persons
30		01 35 23			Pre-Demolition utility plan
31		01 35 23			Approved Confined Space Permits
32		01 35 23			Temporary Egress / Barrier Plan
33		01 35 23 10			MSDS sheets
34		01 41 13			Special Inspection submissions
35		01 41 13			Fire Alarm System License
36		01 41 13			Code test and inspection forms
37		01 41 13			Name of Commissioning contact
24		01 41 16			Diesel vehicle forms
39		01 41 16			Cooling tower maintenance plan
38		01 51 16			Fire watch plan
40		01 52 13			Field Office equipment information
41		01 54 13			Plan for Use of Elevator(s) for Construction
25		01 55 26			Temporary Traffic Control plans
42		01 55 29			lifting procedure safety plan

PROJECT No. 071108-00

Contractor Job #:

Binghamton University

Project Name: Replace Roofs – Admin & Health Svces

Revised By:

DATE:

line No.	Contract or ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal
43		01 55 29			Petolium Spill Compliance Certification
22		01 57 23			SWPPP modifications
23		01 57 23			SWPPP inspection logs
44		01 60 00 20			Vermiculite origins certification
45		01 64 00			Campus-Furnished Products submittals
46		01 66 00			Preventive maintenance log
47		01 71 23			Field Engineering surveys
48		01 73 00 10			Information for Rebates/Grants/Awards/Programs
49		01 74 00			Fluid system flushing and Clean Up plan
50		01 74 00			Final Cleanup Plan
51		01 74 16			Planting Maintenance logs
52		01 74 19			Construction Waste Management Plan
53		01 74 19			Construction Waste manifests/monthly reports
54		01 78 23			Operating Instructions and Manuals
55		01 78 36			Warranties
56		01 79 00			Schedule of Campus training
57		01 79 00			Outlines of actual training
58		02 82 13			Copy of original insurance policy
59		02 82 13			Copy of Department of Labor notification
60		02 82 13			Copy of EPA notification
61		02 82 13			Abatement Plan Layout
62		02 82 13			Asbestos Material Fact Sheet
63		02 82 13			Product Information - Encapsulant, Mask, etc
64		02 82 13			Material Safety Data Sheets
65		02 82 13			Asbestos Handling License
66		02 82 13			Waste Transporter Permits
67		02 82 13			Dumping Receipt - Waste Manifest.
68		02 82 13			Testing Lab - License, Certification.
69		02 82 13			Employees - Workers Acknowledgement, Certificatic
70		02 82 13			Supervisor's Certification
71		02 84 00	1.2.B.1		Remediation Plan – General practices/procedures
72		02 84 00	1.2.B.1		Worker HAZWOPER certifications
73		02 84 00	1.2.B.1		Copy of Waste Transporter Permits/License
74		02 84 00	1.2.B.1		Copy of Hazardous Waste Manifest to be used
75		02 84 00	1.2.B.1		Copy of disposal facility license
76		04 20 00	1.3A		Product Data
77		04 20 00	1.3B		Shop Drawings
78		04 20 00	1.3C		Samples
79		04 20 00	1.4A		Material Certificates
80		04 20 00	1.4B		Mix Designs w/ Test Reports
81		04 51 00	1.3A		Product Data
82		04 51 00	1.3B		Samples
83		04 51 00	1.3C		Qualification Data

PROJECT No. 071108-00

Contractor Job #:

Binghamton University

Project Name: Replace Roofs – Admin & Health Svces

Revised By:

DATE:

line No.	Contract or ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal
		05 12 00	1.6B		Connection types and calculations
		05 12 00	1.6C		Shop Drawings
		05 12 00	1.6D		Product Data
		05 12 00	1.6E		Bolt Certification
		05 12 00	1.6F		Field modifications
		05 12 00	1.6G		Welding Procedure Specifications
		05 30 00	1.6B		Shop Drawings
		05 30 00	1.6C		Calculations
		05 30 00	1.6D		Product Data
84		05 40 00	1.3A		Product Data
85		05 40 00	1.3B		Shop Drawings
86		05 50 00	1.2A		Product Data
87		05 50 00	1.2B		Shop Drawings
88		05 51 50	1.4A		Shop Drawings
89		05 51 50	1.4D		Product Data
90		06 10 00	1.3A		Certification
91		06 10 00	1.3B		Field Test Results
92		07 01 50	1.5A		Product Data
93		07 01 50	1.5B		Temporary Roofing Submittal
94		07 01 50	1.6A		Qualification Data
95		07 01 50	1.6B		Field Test Reports
96		07 01 50	1.06C		Installer Qualifications
97		07 01 50	1.06D		Regulatory Requirements
98		07 19 00	1.4A		Samples
99		07 19 00	1.4B		Product Data
100		07 19 00	1.4C		Certificates
101		07 22 00	1.3A		Product Data/Installation Instructions
102		07 22 00	1.3B		Shop Drawings
103		07 22 00	1.3C		Letter from Manufacturer
104		07 22 00	1.3D		Samples
105		07 52 16	1.4A		Certificates
106		07 52 16	1.4B		Product Data
107		07 52 16	1.4C		Shop Drawings
108		07 52 16	1.4D		Samples
109		07 52 16	1.4E		Sample warranties
110		07 52 16	1.4F		Qualification Data
111		07 52 16	1.4G		Field Test Reports
112		07 53 10	1.4A		Certificates
113		07 53 10	1.4A		Manufacturers sample 20yr warranty
114		07 53 10	1.4C		Roofers 2 yr guarantee
115		07 53 10	1.4D		Samples/Manufacturers Literature
116		07 53 10	1.4		Certificiation
117		07 60 00	1.3A		Shop Drawings
118		07 60 00	1.3B		Samples

PROJECT No. 071108-00

Contractor Job #:

Binghamton University

Project Name: Replace Roofs – Admin & Health Svces

Revised By:

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line No.	Contract or ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal
119		07 60 00	1.3C		20 year color Guarantee
120		07 71 10	1.3A		Shop Drawings
121		07 71 10	1.3B		Samples
122		07 71 10	1.3C		Guarantee
123		07 72 00	1.2A		Product Data
124		07 90 00	1.3A		Samples
125		07 90 00	1.3B		Product Data
126		08 22 50	1.3A		Product Data
127		08 22 50	1.3B		Shop Drawings
128		08 22 50	1.3C		Samples
129		08 22 50	1.3D		Test and Evaluation Reports
130		08 22 50	1.3E		Sample warranties
131		09 23 00	1.2A		Product Data
113		09 29 00	1.3A		Product Data
114		09 90 00	1.3A		Product Data
115		09 90 00	1.3B		Samples
116		09 90 00	1.3D		Materials Certification Affidavit
117		10 20 00	1.3A		Product Data
118		10 20 00	1.3B		Shop Drawings
119		10 20 00	1.3C		Samples
		21 05 29	1.2A		Product Data
		21 05 29	1.3A		Welding Certificates
		21 05 53	1.2A		Product Data
		21 13 13	1.3A		Product Data
		21 13 13	1.4A		Qualification Data for qualified Installer
		21 13 13	1.04B		Field Test Reports
		21 13 13	1.04C		Field quality-control reports
		22 05 53	1.2A		Product Data
		22 07 19	1.2A		Product Data
		22 07 19	1.2B		Shop Drawings
		22 07 19	1.3A		Qualification Data for qualified Installer
		22 07 19	1.3B		Material Test Reports
		22 07 19	1.3C		Field quality-control reports
		22 14 14	1.2A		Product Data
		22 14 14	1.3A		
		22 14 23	1.2A		Product Data
		23 05 29	1.2A		Product Data
		23 05 53	1.2A		Product Data
		23 05 93	1.5A		Qualification Data
		23 05 93	1.5B		Contract Documents Examination Report
		23 05 93	1.5C		Strategies and Procedures Plan
		23 05 93	1.5D		System Readiness Checklists
		23 05 93	1.5E		Examination Report
		23 05 93	1.5F		Certified TAB reports

PROJECT No. 071108-00

Contractor Job #:

Binghamton University

Project Name: Replace Roofs – Admin & Health Svces

Revised By:

DATE:

line No.	Contract or ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal
		23 05 93	1.5G		Sample report forms.
		23 05 93	1.5H		Instrument calibration reports
		23 07 13	1.2A		Product Data
		23 07 13	1.3A		Material Test Reports
		23 07 13	1.3B		Field quality-control reports
120		23 07 19	1. 2A		Product Data
		23 07 19	1.2B		Shop Drawings
		23 07 19	1.3A		Qualification Data
		23 07 19	1.3B		Material Test Reports
		23 07 19	1.3C		Field quality-control reports
122		23 21 13	1.2A		Product Data
		23 21 13	1.3A		Coordination Drawings
		23 21 13	1.3B		Qualification Data for qualified Installer
		23 21 13	1.3C		Welding Certificates
121		23 23 00	1.2A		Product Data
		23 23 00	1.2B		Delegated Design Submittals
		23 23 00	1.3A		Welding Certificates
		23 23 00	1.3B		Field quality-control reports
		23 31 13	1.2A		Delegated Design Submittals
123		23 34 23	1.3A		Product Data
		23 34 23	1.3B		Shop Drawings
		23 34 23	1.4A		Field quality-control reports
		23 81 26	1.2A		Product Data
		23 81 26	1.2B		Shop Drawings
		23 81 26	1.3A		Field quality-control reports
		26 05 15	1.6B		Product Data
		26 05 15	1.6C		Firestopping Schedule
		26 05 15	1.6D		Manufacturer's Installation Instructions
		26 05 15	1.6E		Manufacturer's Certificate
		26 05 15	1.6F		Firestopping Engineering Judgments
		26 05 19	1.5B		Product Data
		26 05 19	1.5C		Test Reports
124		26 05 26	1.03A		Product Data
125		26 05 29	1.02A		Product Data
131		26 05 33	1.04B		Product Data
		26 05 33	1.04C		Manufacturer's Installation Instructions
		25 05 53	1.3A		Product Data
128		26 28 19	1.03B		Product Data
131		26 41 13	1.3A		Product Data
132		26 41 13	1.3B		Shop Drawings
133		26 41 13	1.3C		Qualification Data
134		26 41 13	1.3D		Certification
135		26 41 13	1.3E		Field quality-control reports
136		27 41 33	1.3A		Product Data

PROJECT No. 071108-00

Contractor Job #:

Binghamton University

Project Name: Replace Roofs – Admin & Health Svces

Revised By:

DATE:

line No.	Contract or ID No.	CSI Section No.	Paragraph No.	Revision / Version No. (if appl.)	Description / subject of Submittal
137		27 41 33	1.3B		Work Plan
138		27 41 33	1.4A		Existing-Condition Report
139		27 41 33	1.4B		Tracing Report
140		27 41 33	1.4C		Preconstruction Test Report
141		27 41 33	1.4D		Field quality-control reports
142					

SUNY State University Construction Fund

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)?	☐	☐	☐
2	**Temporary Enclosures** {4.3.1}: Are all panels, tarps, plastic sheeting, etc. flame retardant?	☐	☐	☐
3	**Impairments** {IFC Section 1003}:			
	☐ Have paths of egress from occupied areas been maintained? {IFC Section 1003}:	☐	☐	☐
	☐ If fire alarm/detection systems in occupied areas have been temporarily impaired. Has the Campus Fire Prevention Program Manager approved the impairments/restrictions? {IFC Section 901}	☐	☐	☐
4	**Fire Extinguishers** {4.3.4}:			
	☐ Are appropriate fire extinguishers readily available, with a maximum travel distance of 50 feet?	☐	☐	☐
	☐ Have fire extinguishers been provided within temporary enclosures?	☐	☐	☐
5	**Internal Combustion Devices** {4.4}:			
	☐ Are all internal combustion devices, where required, exhausted outside, with a least 9 inches between exhaust and combustible materials?	☐	☐	☐
	☐ Is refueling only done on cool engines?	☐	☐	☐
6	**Temporary Heating** {5.2}: Is temporary heating equipment listed and being used according to the manufacturer's requirements?	☐	☐	☐
7	**Hot Work Programs** {5.1}:			
	☐ Is there a current permit for ongoing operations?	☐	☐	☐
	☐ Are all precautions required by the permit in place?	☐	☐	☐
	☐ Is there a dedicated fire watch?	☐	☐	☐
	☐ Does the fire watch extend after the completion for work (e.g., usually minimum of 30 min. in general or 2 hrs for roofs)?	☐	☐	☐
8	**Waste** {5.4}: Are accumulations of waste materials, dust, and debris removed at the end of each shift (or more frequently as needed)?	☐	☐	☐
	☐ Are materials subject to spontaneous ignition (e.g., oily rags) stored in listed disposal containers?	☐	☐	☐
9	**Trash Chutes** {5.4}: Are trash chutes non-combustible, or provided with sprinkler protection?	☐	☐	☐
10	**Flammable/Combustible Liquids** {5.5}: Are flammable/combustible liquids in proper containers and is there less than a total of 60 gallons inside and within 50 feet of the structure?	☐	☐	☐
11	**Compressed Gases** { IFC Chapter 53}: Are compressed gases properly stored and being used?	☐	☐	☐

SUCF Project No. _____

#	*All bracketed references are from* **NFPA 241,** *Standard for Safeguarding Construction, Alteration, and Demolition Operations, unless otherwise noted. This is not a completed list of requirements.*	YES	NO	N/A
12	**Electrical** {6.1}:			
	☐ Are extension cords rated and free from damage?	☐	☐	☐
	☐ Do all branch circuits originate in approved power outlets or panel boards with over-current protection?	☐	☐	☐
	☐ Are all circuits grounded?	☐	☐	☐
13	**Lighting** {6.1.3}:			
	☐ Do all temporary lights have guards?	☐	☐	☐
	☐ Are lights only suspended by their cords when designated to be so suspended?	☐	☐	☐
	☐ Are they fastened securely, if necessary, to prevent ignition of combustible materials?	☐	☐	☐
14	**Fire Safety Plan** {7.1}: Has a fire safety plan been established and has a Fire Prevention Program Superintendent been designated?	☐	☐	☐
15	**Fire Alarms {7.4}:**			
	☐ Is there a readily available pull box for fire alarms?	☐	☐	☐
	☐ If a telephone is used, are instructions clearly posted?	☐	☐	☐
16	**Command Post/Evac Area {7.5}**			
	☐ Is there a designated command post provided with plans, emergency info., keys, communication, and other equipment as needed?	☐	☐	☐
	☐ Is there a clear post-evacuation muster location?	☐	☐	☐
17	**Fire Access** {7.5}:			
	☐ Are pre-approved fire department access routes being maintained?	☐	☐	☐
	☐ Is there clear access to hydrants, standpipe and fire department connections?	☐	☐	☐
18	**Standpipes** {7.6, 8.7.4}: Are standpipes ready for use, and remain within one floor of the top level during construction/demolition?	☐	☐	☐
19	**Egress** {7.8}: Is the means of egress acceptable (e.g. properly marked, clear, safe, lighted)?	☐	☐	☐
20	**Sprinkler** {8.7.3}:			
	☐ Is the sprinkler in place as son as practicable following construction?	☐	☐	☐
	☐ Are sprinkler valves checked at the end of each shift?	☐	☐	☐
21	**Fire Cutoffs** {8.6.1}:			
	☐ Are fire walls and exit stairwells, where required for the completed building, given construction priority for installation?	☐	☐	☐
	☐ Are fire doors installed as soon as practicable?	☐	☐	☐
22	**Stairs** {7.5.6}: Is a stairwell provided for the building?	☐	☐	☐
	☐ Is the stairwell extended upward as each floor is installed in new construction and maintained for each floor still remaining in demolotion?	☐	☐	☐
	☐ Is it lighted?	☐	☐	☐
	☐ Is it enclosed when the building exterior walls are in place?	☐	☐	☐
	☐ Is signage provided indicating floor level, stair designation, and exit path directions?	☐	☐	☐
	☐ Are extinguishers provided at each floor?	☐	☐	☐
23	**Impairments to fire protection systems or fire alarm, detection or communication systems {7.2.4.6}:**			
	☐ Are temporary impairments of all fire protection devices and alarm/detection systems immediately removed upon completion of work in the area and at the end of each shift?	☐	☐	☐
	☐ Is there an impairment coordinator?	☐	☐	☐
	Number of Violations:			

SUCF Project No.

Notes:

Completed Report Submission Information:

Distribution: Contractor, Campus, CEO, Project File

Submitted to: Submission Date:

Reviewer: Date of Review:

Statement of Special Inspections

SUCF Project No.: 071108-00 Project Title: REPLACE ROOFS - ADMINISTRATION AND HEALTH SERVICES

Building Name: Administration Building Occupancies: _____ Risk Category: III

Registered Design Professionals in Responsible Charge (RDPRC):

	(Name)	(Address)
Architect:	Bell & Spina, Architects-Engineers	215 Wyoming St, Syracuse, NY 13204
Structural Engineer:	Ryan Biggs Clark Davis	1326 New Seneca Turnpike, Skaneateles NY 13152
Mechanical Engineer:		

- 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 2025 Uniform Fire Prevention and Building Code.

In addition to the inspections required in 2025 BCNYS sections 110 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

Jamie Davis, 09/02/2026

(Print name / date)

(Signature)



(Affix professional seal)

Architect

Douglas K. Arena, 09/02/2026

(Print name / date)

(Signature)

(Affix professional seal)

Mechanical Engineer

(Print name / date)

(Signature)

-> **Seismic-Force-Resisting Systems:** The Seismic Design Category (SDC) is A

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) 150 mph or greater.

☐ Wind Exposure Category C or D, basic design wind speed (V) 140 mph or greater.

☐ Windborne Debris Region (1609.2)

☐ Special Wind Region (1609.3 Figures)

☐ Tornado Loads (1609.5)

☐ Elevators, Escalators, and conveying Systems (1609.7)

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

Check all below that is included in the project and has required special inspections testing and/or structural observations per Chapter 17: Identify documentation drawing location/s:

☐ Special Cases:

☒ Steel Construction: Drawing S003

☐ Concrete Construction:

☐ Masonry Construction:

☐ Wood Construction:

☐ Soils:

☐ Driven deep foundations:

☐ Cast-in-place deep foundations:

☐ Helical pile foundations:

☐ Structural Integrity of deep foundation elements:

☐ Fabricated items:

☐ Wind Requirements:

☐ Seismic Requirements:

☐ Sprayed fire-resistant materials:

☐ Mastic and intumescent fire-resistant coatings:

☐ Exterior insulation and finish systems:

☐ Fire-resistant penetrations and joints:

☐ Smoke control systems:

☐ Sealing of mass timber:

☐ Fabricated assemblies:

☒ Structural Observations: Drawing S001

☒ Documentation reporting requirements: Spec 014533

☐ Other:

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

Contractor's Statement of Responsibility Form

SUCF Project No.: _____ **Project Title:** _____

Building Name: _____

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.: _____ **Project Title:** _____

Building Name: _____ **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, an approved 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.
- Submit a "Certificate of Compliance" at fabrication completion.

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.: _____

Project Title: _____

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)

Statement of Special Inspections

SUCF Project No.: 071108-00 Project Title: REPLACE ROOFS - ADMINISTRATION AND HEALTH SERVICES

Building Name: Health Services Building Occupancies: _____ Risk Category: II

Registered Design Professionals in Responsible Charge (RDPRC):

	(Name)	(Address)
Architect:	Bell & Spina, Architects-Engineers	215 Wyoming St, Syracuse, NY 13204
Structural Engineer:	Ryan Biggs Clark Davis	1326 New Seneca Turnpike, Skaneateles NY 13152
Mechanical Engineer:		

- 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 2025 Uniform Fire Prevention and Building Code.

In addition to the inspections required in 2025 BCNYS sections 110 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

Jamie Davis, 09/02/2026
(Print name / date)

(Signature)



(Affix professional seal)

Architect

Douglas K. Arena, 09/02/2026
(Print name / date)

(Signature)

(Affix professional seal)

Mechanical Engineer

(Print name / date)

(Signature)

-> **Seismic-Force-Resisting Systems:** The Seismic Design Category (SDC) is A

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) 150 mph or greater.

☐ Wind Exposure Category C or D, basic design wind speed (V) 140 mph or greater.

☐ Windborne Debris Region (1609.2)

☐ Special Wind Region (1609.3 Figures)

☐ Tornado Loads (1609.5)

☐ Elevators, Escalators, and conveying Systems (1609.7)

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

Check all below that is included in the project and has required special inspections testing and/or structural observations per Chapter 17: Identify documentation drawing location/s:

☐ Special Cases:

☒ Steel Construction: Drawing S012

☐ Concrete Construction:

☐ Masonry Construction:

☐ Wood Construction:

☐ Soils:

☐ Driven deep foundations:

☐ Cast-in-place deep foundations:

☐ Helical pile foundations:

☐ Structural Integrity of deep foundation elements:

☐ Fabricated items:

☐ Wind Requirements:

☐ Seismic Requirements:

☐ Sprayed fire-resistant materials:

☐ Mastic and intumescent fire-resistant coatings:

☐ Exterior insulation and finish systems:

☐ Fire-resistant penetrations and joints:

☐ Smoke control systems:

☐ Sealing of mass timber:

☐ Fabricated assemblies:

☒ Structural Observations: Drawing S011

☒ Documentation reporting requirements: Spec 014533

☐ Other:

	Category		Special Inspector Minimum Qualifications
☐	Reinforced Concrete	☐	Current ICC Reinforced Concrete Special Inspector or ACI Concrete Constr. Inspector
		☐	Concrete field testing by an ACI Concrete Field Testing Technical w/ Grade 1 cert.
		☐	Intern Engineer with relevant experience
		☐	NYS Registered Design Professional Engineer (RDP) with relevant experience
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		☐	RDP with relevant experience
☐	Mass Timber Sealants	☐	Qualified person with one year of relevant experience
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Contractor's Statement of Responsibility Form

SUCF Project No.: _____ **Project Title:** _____

Building Name: _____

Contractor: _____

Contractor's Acknowledgement of Special Requirements

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☐ **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.: _____ **Project Title:** _____

Building Name: _____ **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".*

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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.: _____

Project Title: _____

Contractor: _____

Special Inspector / Approved Agency: _____

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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)

Campus Specific General Requirements

1. Temporary Access and Parking

a. Access to the building sites for delivery of construction material, personnel and/or equipment shall be made only from the Bunn Hill service entrance drive.

b. The Contractor and his employees shall protect all permanent improvements to remain, all curbs, pavements and other improvements adjacent to work areas liable to injury. Contractor will be responsible for restoring any damaged areas to the satisfaction of the University.

c. Parking Services shall be contacted, prior to Contractor bidding, to obtain current costs and regulations regarding parking. Permits are required to be obtained in order to park on Campus – For All Vehicles.

d. Permits can be obtained by contacting the TAPS Office:
(Transportation and Parking Services)
Couper Administration Building – Ground Floor (AD-G8)
Binghamton University
PO Box 6000
Binghamton, NY 13902-6000
Office Hours: 8:30am – 3:30pm Monday-Friday
Email: parking@binghamton.edu
Phone: (607) 777-2279
Fax: (607) 777-4646

e. **Parking Violations** – contractors must follow all rules and regulations regarding parking and vehicle traffic laws and regulations. These rules and regulations can be found on our website at https://www.binghamton.edu/services/transportation-and-parking/parking. Contractors will be responsible for all violations.

2. Additional Parking Requirements

a. Loading Dock Regulations:

Campus loading docks may be used for intermittent loading and unloading of Contractor's materials, personnel and tools but not for parking of the delivery vehicle. All other vehicles (workers and company owned) are to use University parking lots and be subject to all applicable campus parking regulations and fees. Loading and unloading at campus loading docks is to be coordinated with the University's Project Coordinator. Temporary parking for loading or unloading at locations other than an existing loading dock shall be arranged, with prior approval, by the campus and should also be coordinated with the University's Project Coordinator.

b. ADA Parking Spaces:
ADA spaces are highly utilized and must remain available for the University's use. ADA access to the building must be maintained. Taking any ADA parking space, or impeding access to the building must be approved and coordinated with the University's Project Coordinator and Parking Services. Contractors parked in, or impeding ADA access to the building without prior authorization, will be subject to applicable campus fines.

3. Protection of Existing Structures, Vegetation and Utilities

The Contractor, during the course of its work, shall not damage any buildings, structures and

utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains and electric power and lighting and telephone cables, lawns, curbs, plants and other improvements. Any damage resulting from the Contractor's operations shall be repaired or replaced at its expense.

4. Architect's/Engineer's Seal

In accordance with Rules and Regulations of the New York State Education Law, Title 8, Part 69.5(b), to all plans, specifications and reports to which the seal of an architect has been applied, there shall also be applied a stamp with appropriate wording warning that it is a violation of the law for any person, unless acting under the direction of a licensed architect, to alter an item in any way. If an item bearing the seal of an architect is altered, the altering architect shall affix to his item the seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.

5. Asbestos

If the work to be done under this contract contains the abatement of asbestos the following shall apply:

a. Testing - The University and Campus reserve the right to employ an independent testing laboratory to perform testing on the work and air sampling. The Contractor shall be required to cooperate with the testing laboratory.

6. Emergency Notification Roster

a) Emergency Phone Numbers to be used for Life or Property Emergencies. The following phone numbers must be used to contact Ambulance, Fire Department, and Police.

   1) On Campus Phone: # 911, will connect with campus University Law Enforcement Department (ULED)

   1) Cell Phone: # 777-2222, will connect with on campus (ULED)

   2) Reporting Instructions are as follows: “Identify yourself and say where you are: My name is _____, I am at (Building and room, or address), and I want to report a (Fire, Accident).”

b) Project Roster: The Contractor shall produce, distribute and maintain a Project Roster of Primary contacts, Contractors and Sub-contractors. The Roster shall list the following: The Campus will make a form available to the contractor for this information.
   1) Project Title
   2) Project Construction Fund number
   3) Anticipated Date of Completion
   4) Date and revised dates
   5) Line Numbers for individual contacts
   6) Function of Contact (Individual title)
   7) Name of Contact
   8) Company Name & Business Address
   9) Business Phone #’s: Telephone, Fax, Pager, Car and E-Mail address
   10) Emergency Phone #: for 24 hour emergency

7. Unacceptable Materials and Products

a) All materials and products specified herein and /or used on Work of this Project shall not contain Asbestos, Lead, or PCB, and their packaging shall be labeled accordingly by manufacturers.

b) 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.

8. Worker Protection

a) General and regulatory requirements

1) Comply with requirements of worker protection.

2) Comply with governing codes, laws and regulations and industry standards.

b) Respirators and Filters

1) Respirators and filters shall be selected by Contractor.

2) Choice of respirators and cartridges shall correspond to type of Work performed to protect workers from hazardous exposure during removal of lead-based paint, from fibers during handling of non-combustible filler blanket, from respirable dust during sanding of wood moorings from chemical vapors during sealing/finishing the new flooring and painting game lines and logo.

3) Packing boxes of the respirators (masks) and of disposable filters shall show the logo of NIOSH & of MSHA and shall also indicate that this equipment are for use in environments encountered or expected to be encountered during the Work

c) Personal protective equipment (PPE).

1) Provide per OSHA regulations.

9. Services of Licensed Electrician

a) Provide and maintain electrical mechanical shutdown and lockout tag-out of applicable system during construction.

b) Provide all necessary electrical disconnections of relocated/removed existing equipment and reconnections of reinstalled equipment (as applicable).

c) Provide and maintain a correct and a safe utilization by Contractor of all electrical power supplies, of connected tools and equipment, of portable lighting.

d) All electrically powered tools, equipment and portable lighting shall be connected only to circuitry protected at source by Ground Fault Interrupters (GFI).

e) Where Contractor’s cords or temporary wiring traverses through areas outside Contract Limit Lines, provide “pancake” protections to eliminate tripping hazards.

f) Conduct periodic inspections of both electrical wiring and electrically powered equipment to identity damaged, worn-out or “tired” equipment

10. Temporary Power

a) Supplied by Owner

1) Electrical Power will be available at no cost to the Contractor from existing outlets or panels from locations approved by the University.

2) Electrical Usage:

   (a) Convenience outlets maybe utilized at any location

   (b) The Ampacity of the connected equipment may not exceed 50% of the branch circuit rating.

      (i) 120vac. 30A.circuit = max. usage 15Amps

      (ii) 120vac. 20A circuit = max. usage 10Amps

      (iii) 120vac. 15A circuit = max usage 7.5Amps

3) Branch Circuits

   (a) If the Contractor requires a hard-wired branch circuit, the University will provide the panel-board locations and circuit numbers for the required usage.

   (b) All temporary wiring methods shall be in compliance with N.E.C., chapters 2 & 3.

   (c) Type NMC (Romex) is strictly prohibited for temporary branch circuit wiring.

   (d) All GFCI protection will be the responsibility of the Contractor.

   (e) No existing GFCI branch circuits or receptacles (Property of the University) shall be used for personnel protection for the Contractor.

   (f) If the required ampacity exceeds 40% of the panel-board rating and is continuous in nature (3 hours or more). The contractor shall be required to provide a temporary service from the local Utility.

   (g) In lieu of the above, if available and approved by the University the Contractor may utilize (spare) secondary circuit breaker at building distribution equipment. The distance from the distribution equipment to temporary equipment to panel-boards shall not exceed 500 feet.

   (h) Main circuit breaker rating shall not exceed 225 Amps.

4) The Contractor shall be responsible for providing all necessary connections, cables, etc., and removing of the same at completion of construction with approval from the University.

5) The Contractor shall in no way modify the existing circuits at the panel-board to increase capacities of the circuits. If the required power load exceeds the capacities of the available power sources, the Contractor shall be responsible for furnishing, and installing all necessary temporary power poles, cables, fused disconnect switches, transformers and electric meters necessary to provide a temporary power system for the project, and remove same at completion.

b) Provided by Contractor

1) If the Ampacity of the temporary service requirement exceeds 60 amps, for temporary usage, the following will apply:

   (a) The contractor shall provide all necessary temporary power for exterior site construction activities, temporary facilities, construction trailers and staging area as required. The contractor shall be responsible for furnishing and installing all necessary generators, or temporary power poles, cables, fused disconnect, switches, transformers and electric meters.

(b) Temporary power and distribution shall be removed when directed by the University.

11. Temporary Materials

Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions and must not violate requirements of applicable codes and standards.

12. Temporary Stairs, Ladders, Runways, Ramps, and Hoists

a) Comply with governing regulations and applicable standards.

b) Provide and maintain all equipment such as temporary stairs, ladders, ramps, runways, chutes, etc. as required for the proper execution of the Work. Use of Owner's equipment is prohibited.

c) Contractor's responsibilities and liabilities include providing, and proper use, of temporary stairs, ladders, ramps, scaffolding, lifts and other construction aids encompassing all related safety issues.

13. Temporary Enclosures

Provide and be responsible for all temporary enclosures required for protecting the Project from the exterior, for providing passageways, for the protection of openings both exterior and interior and any other location where temporary enclosures and protection may be required.

14. Temporary Fence, Cordoning-Off, and Warning Signs

a) Provide, install and maintain 8' high construction fencing around construction/staging area as indicated on the contract documents. Such fencing shall effectively enclose the designated construction/staging area and prevent unauthorized entry into the construction area.

b) Construction fence shall be installed prior to the start of any work and shall be maintained in accordance with University standards throughout the entire duration of the project. Coordinate discrepancies between site conditions and contract documents with the University's Representative. Upon completion of project, unless otherwise noted, Contractor is responsible for the disassembly and removal of construction fencing from campus, as well as restoration of lawns, pavement, and/or concrete areas under which the fencing was installed.

c) Maintenance of fencing is required at all times during the entire duration of the project. Contractor shall insure, at minimum, at the start and finish of every shift, that top rails are even, panels are straight with adjacent panels, panels are perpendicular/level with the ground, and wire-tires holding panels together are present and adequately tied. Contractor shall re-inspect and adjust fencing after heavy rains and/or winds, or as otherwise required. Where portable chain-link fencing is authorized by the University, adequate sand bags shall be provided in order to secure/hold fencing in place.

d) Areas in and around the fencing shall be maintained in accordance with University standards; including but not limited to mowing of lawn, snow removal, dust mediation, etc. Staging areas shall be neat and orderly; unneeded materials and debris shall be removed from the staging areas at a minimum of weekly, or more often as deemed necessary. Storm manholes within construction fencing shall be properly maintained to prevent debris from entering the manhole.

Contractor will be held responsible to clean manholes if they are found to have debris relating to construction activity.

e) Utility Markings - Prior to the installation of any post-driven permanent fence, the Contractor is responsible for hiring a Utility Marking company to identify and mark underground utilities which may exist below the purposed fencing/staging footprint. If utilities are found to impede the installation of fence, as is shown on the contract documents, the University's Representative shall be contacted. The University's Representative will assist the contractor, to the best of its ability, to provide the contractor with existing site surveys. Damage done to underground utilities due to inadequate investigation or markings will be the responsibility of the contractor to remediate.

f) Provide warning signs, securely anchored to the fence with galvanized steel, tamperproof anchor bolts at each entrance to the site. Sign shall read; ***Construction Area. Do Not Enter. Authorized Personnel Only.*** Provide additional warning signs, as required by governing codes, laws and regulations.

g) The costs associated with this section shall be included in the Base Bid and shall be broken out as a separate line item in the Schedule of Values.

h) Do not fence in Yard Fire Hydrants or other utilities that may require access.

Permanent Chain-Link Fence

1) Minimum 2", 1.048 thick, black coated galvanized steel chain link fence. No fabric or vinyl privacy slats.

2) Minimum 8' high fence with black coated galvanized steel pipe posts.
    a) Posts- Minimum 2-3/8" OD line posts and 2-7/8" OD corner and pull posts. Terminal and corner posts of fence shall be post driven, 24" into ground. Spacing of line posts at 8' maximum.
    b) Top Rail – 1-5/8" OD, black coated steel.
    c) Gate Posts – 3" OD, SS40 Steel, black coated, set in concrete 14" diameter and 42" deep.
    d) Gate – 1-5/8" OD. Double leaf with mid-rail, heavy duty strap hinges, drop bar, latch/hasp, black coated steel.
    e) Tension wire – black coated to match fence and posts. Sufficiently spaced to provide adequate support in holding panels together and upright. Minimum 3 ties per panel connection.
    f) Accessories – stretcher bars, rail ends, post caps, etc., as needed to complete work.

Portable Chain-Link Fencing

1) Acceptable only at the discretion of the University's Representative, in locations were Permanent Chain Link Fencing cannot be used.

2) Minimum 2", 1.048 thick, black coated galvanized steel chain link fence. No fabric or vinyl privacy slats.

3) Minimum 8' high fence with black coated galvanized steel pipe posts.

a) Posts- Minimum 2-3/8" OD line posts and 2-7/8" OD corner and pull posts. Sand bags at base of all posts to adequately hold posts/panels in place. Spacing of line posts at 8' maximum.
b) Top Rail – 1-5/8" OD, black coated steel.
c) Gate Posts – 3" OD, SS40 Steel, black coated.
d) Gate – 1-5/8" OD. Double leaf with mid-rail, heavy duty strap hinges, drop bar, latch/hasp, black coated steel.
e) Tension wire – black coated to match fence and posts. Sufficiently spaced to provide adequate support in holding panels together and upright. Minimum 3 ties per panel connection.
f) Accessories – stretcher bars, rail ends, post caps, etc., as needed to complete work.

Plastic "Snow" Fence

1) The use of green 48" high plastic/polyresin perimeter fence will be authorized for use at the discretion of the University's Representative. The use of orange plastic/polyresin fence is strictly prohibited on campus.

2) 60" high, 14 gauge, steel U-Posts, powder coated green or black shall be used. No wood stakes/posts will be permitted. Maximum post spacing 8'.

3) Maintenance of the vinyl fence is required at all times during its use. Contractor shall inspect fencing at the start and finish of every shift. Contractor shall re-inspect and adjust fencing after heavy rains or winds, or as otherwise required. Fencing shall be installed taught to prevent the fabric from falling over. Posts shall be adequately spaced and driven into the ground.

15. Temporary Access and Directions

a) SUNY Binghamton is located on Route 434 in Vestal, New York. The University can be approached from Route 17, via exit 70 south (route 201), travel about one mile south on route 201 to traffic circle, bear right around the circle and cross the Susquehanna River via the C. Fred Johnson Memorial Bridge. Once across the bridge the University can be seen directly ahead. Stay in the right lane and exit (Route 434 west). The first traffic light after the exit is Bunn Hill road, turn left onto Bunn Hill, the University entrance is on the left. Routes on Campus, to and from the construction site shall be as directed by the Owner or the Owner's Representative.

b) Delivery Instructions: The Contractor / Sub-Contractors shall provide the Project Name and Contractors Name on all deliveries to the Campus and Construction Site. The University will not accept deliveries at Campus Central Receiving.

c) Access to the building sites for delivery of construction material, personnel, and /or equipment shall be made only from Bunn Hill Road service entrance drive on the west side of the campus.

d) In the moving of materials and equipment over existing roadways and adjacent areas, the contractor shall at all times observe the posted speed limit and / or as otherwise directed the maximum loads allowed. Movement over underground facilities that may be damaged from excessive loads, is prohibited at all times.

16. Repair of Parking Areas

a) Contractor shall protect all permanent improvements to remain, including curbs, pavement and other improvements adjacent to work areas liable to injury.

b) Repair of any damage caused to the parking lot assigned to the Contractor as a result of the Contractor's action shall be the responsibility of the Contractor

c) Asphalt pavement specs need to include minimum pavement depths as follows:
   1) gravel base, 10" compacted item # 4
   2) asphalt binder, 3" type # 3
   3) asphalt topping, 1-1/2" type # 6

d) All curbing along roadsides is to be granite curb to match existing.

e) 4' wide curb cuts with texture identification are to be included at intersections of walks and roads.

15. Cooperation with the University

a) Adjacent buildings and grounds will be in use during the term of this Contract. The Contractor shall cooperate with the University in order that the work shall cause as little disturbance and inconvenience as possible. The University's representative shall be local contact for the coordination. The Contractor shall anticipate that certain conditions may develop during construction, which will necessitate changes in procedures and scheduling of work to meet such conditions.

b) The Contractor shall coordinate all construction activities to allow adequate access to and from building doors. The location and method of access may be varied by the Contractor to allow for his operations but shall always be coordinated with the College and Architect's Representative. The Contractor shall provide all barricades, bridges, warning lights and other safety methods to maintain continuous safe access to the public.

BINGHAMTON UNIVERSITY
State University of New York

Environmental Health & Safety
Ground Floor
Health Services Building
Phone 777-2211 Fax 777-4444

HOT WORK PERMIT

Date:	Building:
Location:	

Work To Be Done:

- ❑ Abrasive Saw
- ❑ Cut / Grind
- ❑ Heat Tile
- ❑ Solder
- ❑ Welding _____(type)
- ❑ Other _____

Fumes / Vapors

Location of nearest air intake:

_____

_____

Type of control in place to prevent spread of fumes/vapors in air intake:

_____

_____

Permit Valid:

From: _____ To: _____

Start Time:	Completion Time:
Contractor Name & Cell/Pager #:	Supervisor Name & Cell/Pager #:
B.U. Department:	B.U. Contact Name & Cell/Pager #:

EH&S Authorization:

Person Completing Work:

Person Responsible for Fire Watch:

EH&S **must** be notified immediately upon completion of work 777-2211

EMERGENCY

911 From a Campus Phone or 777-2393

SEE ADDITIONAL REQUIREMENTS ON BACK

BINGHAMTON UNIVERSITY
State University of New York

Environmental Health & Safety
Ground Floor
Health Services Building
Phone 777-2211 Fax 777-4444

FIRE PROTECTION IMPAIRMENT PERMIT

Date:	Building:
Area Protected:	
Reason For Impairment:	

Check If Effected:	**Precautions Taken:**
❑ Sprinkler	❑ Fire Department Notified
❑ Smoke Detector	❑ System Backfed
❑ Heat Detector	❑ All Hazardous Operations Stopped
❑ Halon	❑ Fire Watch
❑ Hydrant	❑ Other _____
❑ Fire Panel	
❑ Other _____	

Out of Service:

Date: _____ Time: _____

In Service:

Date: _____ Time: _____

Contractor Name & Cell:	Supervisor Name & Cell:
B.U. Department:	B.U. Contact Name & Cell:

Person In Charge of Fire Watch (Name, Cell):

BU Authorization to begin work (signature):

BU Verification of full system restoration (signature):

EH&S **must** be notified immediately upon completion of work 777-2211

SECTION 01 45 33 - SPECIAL INSPECTIONS AND STRUCTURAL TESTING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Special Inspections and Structural Testing shall be in accordance with Chapter 17 of the *Building Code of New York State* (BCNYS).

1.02 DEFINITIONS

A. Approved Agency: An established and recognized agency engaged by the Owner or the Owner's authorized agent to perform testing and inspections. The Approved Agency shall be regularly engaged in conducting tests, providing inspection services, and providing product certifications. The Approved Agency shall have equipment and personnel to conduct and evaluate tests and conduct Special Inspections on behalf of the Owner.

B. Registered Design Professional in Responsible Charge (RDPRC): Professional Engineer or Registered Architect licensed in New York State, engaged by the Owner or the Owner's authorized agent to review, coordinate, and implement the Special Inspection program. The RDPRC may or may not be employed by the Approved Agency and may or may not be the Project SEOR.

C. Special Inspector: A qualified person employed or retained by the Approved Agency, approved by the Code Enforcement Official as having the qualifications required to perform inspections.

D. Structural Engineer of Record (SEOR): Registered Design Professional Engineer whose seal appears on the Contract Documents and is responsible for the preparation of the Schedule of Special Inspections.

E. Code Enforcement Official: Officer or other designated authority charged with administration and enforcement of the BCNYS. For projects under jurisdiction of New York State agencies such as the Department of Education (SED), State University Construction Fund (SUCF), Office of General Services (OGS), and Dormitory Authority (DASNY), the Code Enforcement Official is an official from agency having jurisdiction.

F. SUCF Statement of Special Inspections: Documents prepared by the SEOR and filed with and approved by the Code Enforcement Official, listing materials and work requiring Special Inspections. The Statement of Special Inspections is represented by this specification and includes the Schedule of Special Inspections.

G. Schedule of Special Inspections: An itemized list of inspections, verifications, and tests (including frequency) required for the project, and the minimum qualifications of the Special Inspectors who will perform these services. The Schedule of Special Inspections is provided on the Drawings.

H. Inspect and Inspection: Visual observation of materials, equipment, or construction work as defined in the Statement of Special Inspections, to determine that the work is in substantial conformance with the requirements of the Contract Documents.

I. Continuous Special Inspection: Full-time observation of work by the Special Inspector while the work is being performed.

J. Periodic Special Inspections: Part-time or intermittent observation of work by the Special

Inspector for work that has been or is being performed and at completion of work.

1.03 **QUALIFICATIONS**

A. The Approved Agency, RDPRC, and Special Inspectors shall be accepted by the Owner and the Code Enforcement Official.

B. Special Inspections shall be performed by personnel who have relevant experience for each category of inspections indicated herein.

C. Required minimum qualifications of Special Inspectors are indicated in the SUCF Statement of Special Inspection.

1.04 **SUBMITTALS**

A. The Approved Agency shall submit to the RDPRC and Code Enforcement Official for review, a copy of their qualifications including names and qualifications of the RDPRC and each Special Inspector who will be performing inspections or tests.

B. The Approved Agency shall disclose past or current business relationships or potential conflicts of interest with Contractor or Subcontractors whose work will be inspected or tested.

1.05 **PAYMENT**

A. Owner will engage and pay for services of the RDPRC, Approved Agency, and the Special Inspectors.

B. If materials requiring Special Inspections are fabricated in a plant not within 200 miles of project site, Contractor shall be responsible for travel expenses of Special Inspectors.

C. Contractor shall be responsible for cost of retesting or reinspection of work failing to comply with requirements of Contract Documents.

1.06 **OWNER RESPONSIBILITIES**

A. Owner will provide the RDPRC and Approved Agency with complete set of Contract Documents sealed by the SEOR and approved by the Code Enforcement Official.

1.07 **CONTRACTOR RESPONSIBILITIES**

A. Contractor shall cooperate with the RDPRC, Approved Agency, and the Special Inspectors, so Special Inspections and testing may be performed without hindrance.

B. As indicated in the Schedule of Special Inspections, Contractor shall notify the RDPRC and Approved Agency at least 48 hours in advance of a required inspection or test.

C. Contractor shall provide incidental labor and facilities to provide access to work to be inspected or tested, to obtain and handle samples at site or at source of products to be tested, to facilitate tests and inspections, and for storing and curing of test samples.

D. If Special Inspections or testing require the use of Contractor’s scaffolding to access work areas, Contractor shall provide competent person to perform daily evaluation of scaffolding to verify it is safe to use. Contractor shall notify Special Inspectors of this review before each use. Contractor is responsible for safe assembly and stability of scaffolding.

E. Contractor shall keep latest set of Construction Drawings, field sketches, accepted shop drawings, and specifications at project site for field use by Special Inspectors.

F. Contractor shall perform remedial work if required and sign nonconformance reports stating remedial work has been completed. Contractor shall submit signed reports to the Approved Agency and RDPRC as work proceeds.

G. The Special Inspection program shall not relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents or from implementing an effective Quality Control program.

H. Contractor shall be solely responsible for construction site safety.

1.08 **SPECIAL INSPECTOR RESPONSIBILITIES**

A. The RDPRC shall hold a Special Inspections preconstruction meeting at least 7 days prior to initial planned date for start of construction. Attendees shall include Contractors, Approved Agency, SEOR, and Project Architect. Discussions shall include the following:

1. Review of specifications and Schedule of Special Inspections for work requiring Special Inspections.
2. Responsibilities of the RDPRC, Contractors, Owner, Approved Agency, Special Inspectors, and SEOR.
3. Notification and reporting procedures.

B. RDPRC shall record and distribute minutes from the Special Inspection Preconstruction meeting.

C. RDPRC shall review inspection and material testing reports and coordinate the services of the Approved Agency as follows:

1. Verify inspections have been performed in accordance with the Schedule of Special Inspections.
2. Verify reports are being distributed to the Contractor, Owner, Architect, Code Enforcement Official, and SEOR.
3. Verify discrepancies have been recorded and are being tracked.

D. Special Inspectors shall make site visits to inspect work as designated in the Statement of Special Inspections. Discrepancies will be brought to the attention of the Contractor, RDPRC and SEOR.

E. RDPRC shall keep records of inspections and tests.

F. RDPRC shall review Certificates of Compliance for conformance with the standards specified in the Contract Documents. Discrepancies will be brought to the attention of the Contractor and SEOR.

G. Special Inspector shall submit the SUCF Special Inspector’s Final Report Form.

1.09 **LIMITS ON AUTHORITY**

A. RDPRC and Approved Agency shall not:

1. Release, revoke, alter, or enlarge on requirements of Contract Documents.

2. Have control over Contractor's means and methods of construction.
3. Be responsible for construction site safety.
4. Have authority to stop work.

1.10 **RECORDS AND REPORTS**

A. Prepare detailed reports of each test or inspection. Include the following general information:

1. Project name and number.
2. Date of test or inspection.
3. Name of RDPRC and Approved Agency.
4. Name of Special Inspector.
5. Weather conditions.
6. Locations and elevations of specific areas tested or inspected referenced to grid lines.
7. Description of test or inspection.
8. Reference to applicable ASTM standard.
9. Summary of observations, results, and recommendations.
10. Description of areas or materials requiring retesting or reinspection.

1.11 **COMMUNICATION**

A. Special Inspector shall immediately notify Contractor, RDPRC, Approved Agency, and SEOR by telephone, fax, or e-mail of test results failing to comply with requirements of Contract Documents.

B. Special Inspector shall immediately notify Contractor of work found to be in nonconformance with Contract Documents during inspections. If nonconforming work is not corrected while Special Inspector is on-site, Special Inspector shall notify RDPRC, Approved Agency, and SEOR within 24 hours (one business day) and issue an inspection report noting the non-conformance.

C. Approved Agency shall use a log to record and track non-conforming work during construction. Non-Conformance log shall include the following information:

1. Description of non-conformance.
2. Date of non-conformance.
3. Description of SEOR response if received.
4. Status of nonconformance: 'Open' or 'Closed.'

Updated log shall be submitted to the RDPRC, SEOR, and Architect on a weekly basis. Approved Agency may use Non-Conformance Log form provided at end of this section or other similar form.

D. If non-conforming work is not corrected at time of substantial completion of structure or other appropriate time, RDPRC shall notify Code Enforcement Official.

1.12 **DISTRIBUTION OF REPORTS**

A. Approved Agency shall submit reports to RDPRC and SEOR within 7 days of inspection or test. Legible handwritten reports may be submitted if final typed copies are not available.

B. RDPRC shall distribute reports to the Contractor, Owner, Architect, Code Enforcement Official, and SEOR within 7 days of inspections. Legible handwritten reports may be

submitted if final typed copies are not available.

C. If requested by the Code Enforcement Official, Approved Agency and RDPRC shall submit interim reports that include inspections and tests performed since beginning of construction or since previous interim report. Interim reports shall be addressed to the Code Enforcement Official with copies sent to the SEOR, Architect, and Contractor. Interim reports shall be signed by Special Inspector performing inspections.

1.13 **FINAL REPORT OF SPECIAL INSPECTIONS**

A. At completion of work, each Approved Agency shall submit Agent's Final Report of Special Inspections to RDPRC stating work was completed in substantial conformance with Contract Documents and appropriate inspections and tests were performed. Approved Agency shall use SUCF Agent's Final Report of Special Inspections form.

B. RDPRC shall use SUCF Final Report of Special Inspections form.

C. RDPRC shall submit Final Report of Special Inspections to SEOR and Code Enforcement Official prior to issuance of a Certificate of Use and Occupancy.

APPROVED AGENCY NON-CONFORMANCE LOG

PROJECT:

PROJECT NUMBER:

Non-Conformance Item No. (See Note 1)	Special Inspection Report No. Reference/Date	Summary of Non-Conformance	Date SEOR Response Received	Reinspection Required	Date Contractor Verification Received (See Note 1)	Status (See Note 2)
NC 1						
NC 2						
NC 3						
NC 4						
NC 5						
NC 6						

1. New items are in **bold**. For each non-conformance item above, the General Contractor or Subcontractor must sign and submit the Contractor Verification statement located in the RDP Response Report.

2. Non-conformance items remain " OPEN" until the Contractor Verification have been received. When the signed verifications have been received by the RDP, the item will be " CLOSED" .

Approved Agency's Final Report of Special Inspections

Project Name:_____ Approved Agency: _____
Location:_____ Approved Agency Project No.: _____
Owner:_____ Special Inspector: _____
Owner Address:_____ SEOR: _____
Ryan Biggs Clark Davis Project No.: _____

To the best of my information, knowledge, and belief, the Special Inspections and testing required for this project and designated in the Statement of Special Inspections (which includes Specification Section 014533 and the Schedule of Special Inspections) have been performed and discovered discrepancies have been reported and resolved except for the following:

Comments:

[Attach continuation sheets if required to complete description of uncorrected discrepancies.]

Respectfully submitted,
Agent of the Approved Agency

_____
(Type or print name)

_____
Signature Date

_____
Address

_____
City, State, Zip

Final Report of Special Inspections

Project Name:_____ Approved Agency: _____
Location:_____ Approved Agency Project No.: _____
Owner:_____ Special Inspector: _____
Owner Address:_____ SEOR: _____
Ryan Biggs Clark Davis Project No.: _____

To the best of my information, knowledge, and belief, Special Inspections required for this project, as indicated in the Statement of Special Inspections, (which includes Specification Section 014533 and the Schedule of Special Inspections) have been performed and discovered discrepancies have been reported and resolved except for the following:

Comments:

[Attach continuation sheets if required to complete description of uncorrected discrepancies.]

Interim reports submitted prior to this Final Report form a basis for and are to be considered an integral part of this Final Report. Upon request, the interim Testing and Special Inspection reports can be provided. Agent's Final Reports of Special Inspections are attached and are also a part of this Final Report.

Respectfully submitted,
Registered Design Professional in Responsible Charge

_____
(Type or print name)

_____
Signature Date

Professional Seal

END OF SECTION 01 45 33 – SPECIAL INSPECTIONS & STRUCTURAL TESTING (03/22)

SECTION 02 26 00 – HAZARDOUS MATERIALS ASSESSMENT

PART 1 GENERAL

1.01 **DESCRIPTION**

A. Investigations have been made at the site, test results are included in the APPENDIX of these specifications. Reference OSHA 29 CFR 1926-62 “Employee Construction Workers Exposed Lead”. Follow HUD guidelines for lead abatement as required to perform work. See HUD Guidelines, Appendix 7.3: Lead Based Paint Abatement Specification Example.

B. Neither the Architect nor the Owner guarantees the adequacy or accuracy of the data, or that the data is representative of all conditions to be encountered. Such information is made available for general information only and shall not relieve the Contractor of the responsibility for making his own investigation.

1.02 **REPORTS INCLUDED (in appendix)**

A. Asbestos-Containing Material, Lead-Based Paint, and Polychlorinated Biphenyls (PCB)

1. Report Title: Hazardous Materials Survey, Pre-Renovation Asbestos, Lead-Based Paint and PCB Caulk, SUNY Binghamton West Gym, Administration & Health Services, Binghamton, New York.

a. Testing Agency: Ambient Environmental, Inc.

b. Date: August 12, 13 and October 28, 2024.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION 02 26 00 – HAZARDOUS MATERIALS ASSESSMENT

SECTION 02 41 19 – SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work

This Section describes the requirements of the Demolition without limiting the generality implied by the Specifications and Drawings. The work under this Section shall include, but is not limited to the following principal items:

1. Demolition, Cutting and Patching: As indicated and as necessary to install new work.
2. Salvage of Materials: None
3. General Construction Work: Add, build, demolish, relocate, remove, patch and finish such walls, ceilings, partitions, structural materials, equipment, finish materials, etc., as indicated and as necessary to complete the general construction work.
4. Mechanical / Electrical / Plumbing (MEP) Work: Systems shall be properly disconnected, terminated, demolished, altered, relocated, replaced, added to as indicated and required to complete the work.

1.02 SECURITY AND ACCESS

A. The security and maintenance of adequate safe means of egress and ingress to existing building is of prime importance from the standpoint of maintaining safe access through construction operations at all times. The Contractor shall coordinate work with the Owner's site representative and all concerned.

B. Entrances and exits shall remain accessible at all times. Plans for any prolonged (other than momentary) obstruction to pedestrian and/or vehicular access must be cleared with the Owner's Representative prior to implementation.

PART 2 PRODUCTS

2.01 MATERIALS

A. For replacement of work removed, comply with Specifications for type of work to be done.

B. Existing materials altered shall be replaced with like materials "Patch to Match", or as called for on the Plans.

PART 3 EXECUTION

3.01 PROCEDURE AND TIMING

A. Procedure

The work shall be executed in an orderly and careful manner with due consideration for inhabitants and the public. Maintain enclosures at all openings to adjacent areas not being altered, at all times, with necessary signs, lights, bracing and guards for the protection of all personnel and existing facilities.

B. Timing

Coordinate work to facilitate scheduling of abandonment and to allow for the installation of temporary and permanent services as required. All work shall be scheduled in advance at a meeting with the Owner, Architect and Contractor to coordinate work schedules.

C. Cutting and Patching

The Contractor shall include as scope of his work all alterations intended for a complete project as required to:

1. Maintain fire safety and environmental systems throughout construction. Temporary facilities shall be installed as required during removals to accomplish same.
2. Make all parts fit properly.
3. Uncover work to provide for installation of ill-timed work.
4. Remove and replace defective work.
5. Remove and replace work not conforming to requirements of Contract Documents.
6. Install specified work in existing construction.
7. Do not endanger any work by cutting or altering work or any part of it.

D. The Contractor shall salvage all materials for reuse for work of their trades in a manner which prevents injury or damage to persons, adjoining properties and public rights-of-way in compliance with the Existing Building Code of New York State Section 1301.4. The Contractor shall coordinate with the Owner all materials or equipment to be removed, relocated or reused. The Contractor shall determine the scope of work required to perform these tasks.

E. The Contractor shall remove and dispose of all materials that will not be reused. This includes all necessary work involved in elimination and hauling away materials intended for removal by the Specifications and Drawings. The work under this Section shall include all necessary labor and materials to repair existing demolished materials, except as specified or shown otherwise, shall become the property of the Contractor and shall be removed from the project site.

F. Protect and safeguard from damage all existing structural systems, equipment and finishes that will remain. Contractor shall be responsible for any damage caused by his own forces or his subcontractors.

G. Clean-Up

The site and surrounding areas shall be kept free of rubbish and debris and in good clear order at all times.
The Contractor shall be responsible for the repair of any items to remain that he or his forces damage.

H. Structural and other conditions will be verified with the Architect before proceeding with alteration work. Inspect structures prior to start of work and notify the Architect in writing, of any conditions detrimental to the execution of the work. Photograph existing damage which could be misconstrued as a damage resulting from the work of the Contract. State location and date of photograph and file with the Architect prior to starting work.

END OF SECTION 02 41 19 – SELECTIVE DEMOLITION

SECTION 02 57 50 - RESTORATION OF SURFACES

PART 1 GENERAL

1.01 **SCOPE**

The following items are specifically included:

A. Lawns and Landscaped Areas disturbed, damaged or destroyed during the performance of work under this Contract, shall be restored and maintained as specified herein and as shown and directed by the Architect.

B. The types of replacement are as follows:

1. Lawns and Landscaped Areas.
2. Sidewalks
3. Curbs

PART 2 PRODUCTS

2.01 **QUALITY CONTROL**

A. The quality of materials and the performance of work used in the restoration shall produce lawn and landscaped areas equal to or better than the condition of each before the work began. The materials used in the restoration shall be new and in accordance with that specified in this Section. In the event a surface or material requires restoration and the material is not specified under this Contract, the Contractor shall notify the Architect and submit to the Architect his proposed restoration plan. Such restoration shall be subject to the Architect's and/or the Owner’s approval.

2.02 **SOD**

A. Nursery grown NYS approved turfgrass sod grown from certified seed, of known origin, consisting of a 100% blend of at least 3 Kentucky Bluegrass varieties designed and suitable for athletic fields and tolerating 1-1/2" to 2" mowing height, grown on mineral soils, all in a single location.
B. Sod shall be machine cut at a uniform 3/4'' nominal soil thickness at the time of cutting, standard pad sizes acceptable, maximum roll sizes considered.
C. Sod shall be delivered within 36 hours of harvesting; deliveries shall be coordinated to permit immediate transplanting, and provision shall be made between the contractor and sod supplier/subcontractor for adequate watering sources and supplies during and after transplanting.
D. Staples for pegging shall be approximately 1" x 6" and sufficient length to penetrate the sod, the topsoil, and to a minimum depth of 5" of subsoil.

2.03 **SOIL AMENDMENTS AS REQUIRED**

A. Limestone: Ground limestone, from commercial source, fully labeled for distribution at a rate per 1,000 square feet of new grass area as determined and recommended by Cornell tests for pH correction.

B. Fertilizer: Complete fertilizer, from commercial source, fully labeled and bearing manufacturers analysis; containing ratio of nitrogen-phosphorous-potassium determined and recommended by Cornell tests and distributed at a Cornell recommended rate per

1,000 square feet.

C. Pre-emergent Weed Control (for seeded grass areas only): Commercial source bearing manufacturer's analysis and recommendation for application.

2.04 **MULCH (Seeded Areas)**

A. For Mechanical Seeding: Stall hay or well threshed straw of either oats, wheat or rye, free from matured seed or seed detrimental to development of lawn.

B. Hydroseeding: One or two step seeding/fertilizing/mulching procedure, standard commercial practices by experienced firm, use commercial mulch binder/soil sealer admixtures. Slurry mixes in accordance with good practice.

2.05 **WATER**

A. On-site water supply shall be at no cost; Contractor shall make all necessary arrangements for use of water with the Campus and shall supply all hoses and control valves for use and distribution; the Campus will turn supply on and off; no wasteful use of water.

2.06 **CONCRETE WALKS**

A. Concrete walks shall be constructed of Class B fiber reinforced concrete at the expense of the Contractor in-kind if damaged as a result of the work of this contract.

PART 3 EXECUTION

3.01 **SCHEDULE OF REPLACEMENT**

A. A schedule of replacement operations shall be coordinated by the Contractor with approval of the Architect and/or the Owner. The program shall be adhered to unless otherwise approved.

3.02 **EXISTING CONCRETE WALKS**

A. Concrete walks removed in connection with or damaged as a result of construction operations under the Contract shall be replaced with new construction. Walks shall be constructed on a thoroughly compacted (95% compaction) NYSDOT Type 2 subgrade (minimum 8”), shall have a vertical thickness of not less than 5-inches (or the thickness of the replaced walk where greater than 5-inches) shall be constructed with vertical construction joints spaced not more than 5 feet apart, shall be provided with expansion joints spaced not more than 25 feet apart, and shall be sloped toward curbs or grade at approximately 1/4-inch per foot of walk width.

B. Walks shall be finished to match adjacent walks and require color, edged with an edging tool and grooved at construction joints and at intermediate intervals not in excess of the width of the walk. The lengths of blocks formed by the grooving tool and distances between construction and expansion joints shall be uniform throughout the length of the walk in any one location.

3.03 **LAWN SOD**

A. Scope: Install Lawn Sod at all areas disturbed/damaged by contractor.

B. Season of year for sodding: subject to approval by Architect. Do not sod when high wind,

drought, excessive moisture, ice, or other conditions are such that specified results are not likely to be obtained.

C. Fertilize: Evenly distribute at 25 pounds per 1,000 square feet. Work lightly into top 1" of soil.

D. Sod Areas: Where sod alternate bids are made part of the contract, adjust finish grade to provide for sod depth. Plan transplanting pattern, starter strip locations and related procedures in advance within each working area.

E. Sod:

1. Lay sod to smooth grade shown with tight staggered joints. Roll to eliminate air pockets.
2. Staple each piece of sod immediately after rolling in all drainage courses, on all slopes 1 on 3 or steeper, and elsewhere where directed.
3. Water immediately after sodding to saturate the soil to 2" depth. Thereafter, water all sodded areas to 1" depth soil saturation no less than 2 times per week, and more often during periods of drought or high winds, as required by Architect until final acceptance.
4. Mow all lawn areas to 2" height until acceptance. Grass shall not exceed 3" in height. A minimum of three mowings are required.

F. Protect all seeded, sodded and hydroseeded areas, at contractor's expense, with snow fences, wire farm fences, or similar structures. Remove upon final acceptance. On steep slopes or areas subject to erosion, stabilize topsoil and seed as required to allow adequate germination.

G. Maintain Sod:

1. Begin immediately upon completion of sodding and continue for a minimum of 30 days or longer as required to establish uniform stand of specified grasses and until final acceptance.
2. Water immediately after sodding to saturate the soil to ½" depth. Thereafter, water all sodded areas to 1" depth soil saturation no less than two times per week, and more often during periods of drought or high winds until final acceptance.
3. Repair all washouts and gullies. Rerake, reseed, resod and remulch as necessary.
4. Mow all lawn areas to 2" height until acceptance. Grass shall not exceed 3" in height. A minimum of three mowings is required.

H. Inspection and final acceptance of lawns:

1. Performance: (Sod Areas) Produce full dense, vigorous stand of grasses on stable and properly shaped and graded lawn areas. Avoid erosion or other washout or failure of slopes. Areas which are dead, bare or sparse in growth, show weed growth, or have settled, eroded or are otherwise considered unsatisfactory by the architect shall be repaired or replaced, including all supplemental topsoil, scarifying, fine grading, seeding, sodding, mulching and clean up of silted areas, and other work, all done as often as necessary to produce acceptable lawn.
2. Owner's responsibility after final acceptance.

3.04 CURBS, GUTTERS AND CULVERTS

A. The Contractor shall, at his own expense, permanent repair and relay all curbs, gutters, roadway and driveway culverts where the same have been broken, injured or disturbed by the Contractor in executing any of the work covered by the Contract or by or on account of

said work. He shall restore the same in a manner, to a condition and with material, either new or old as required, similar and equal to that existing before such excavations where made.

END OF SECTION 02 57 50 - RESTORATION OF SURFACES

SECTION 02 82 13 - ASBESTOS ABATEMENT

PART 1 GENERAL

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).

b. Presumed Asbestos-Containing Material: All material which can be defined as "presumed asbestos-containing material" according to 29 CFR Part 1926 (thermal insulation and surfacing material) shall be considered asbestos-containing materials unless asbestos test results bound at the end of this section indicate otherwise; or if the Contractor, at its own expense, tests the presumed asbestos-containing material and rebuts the presumption, as permitted by CFR Part 1926.

c. Applicable Variance: The Contractor is responsible for obtaining any variance not issued to date that he feels may be applicable to the policies/ procedures as set forth in 12 NYCRR Part 56.

d. Owner Project Fact Sheet: The Contractor shall complete and submit as much information as possible on the SUCF Asbestos Material Fact Sheet (appended to this Section) to the Fund in triplicate prior to the project startup. Completion of the Fact Sheet shall be submitted prior to acceptance.

e. Patent Infringement: The State University Construction Fund have been given notice by a law firm representing GPAC, Inc. that the use of its process/procedure for asbestos containment and removal constitutes a patent infringement. All potential contractors are hereby notified that they may have to obtain a license to use certain patented Negative Air Containment systems, and that any liability of the Fund in connection therewith is covered by Section 2.21 of the Agreement. Therefore, all potential contractors are hereby notified that after opening of the bids they must advise the Fund as to the system they intend to use for Negative Air Containment and provide the Fund with either a copy of their license to use the same or written documentation, signed by an authorized officer of their surety, that their performance bond guarantees the Contractor's indemnification covering patent claims.

f. 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. 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, 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.

g. Disposal Procedures: It is the responsibility of the Contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The asbestos contractor must comply fully with these regulations, all appropriate U.S. Department of Transportation, EPA and Federal, State and local entities' regulations, and all other then current legal requirements. Submit originals or

copies of all pertinent manifests in triplicate to the Fund. Use a single source facility for disposal of all waste of similar type and category.

h. Submittals: Prior to commencement of the work on this project, the Contractor must submit the following to the University:

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

i. Special Requirements

1) Size, location, and quantities of all pipes, joints, ducts, valves, tees, etc. must be field verified by all prospective bidders. Information given on the drawings and specifications is for general orientation and information only.

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, renovation, the Contractor must submit to the University the name of its on-site asbestos supervisor responsible for such operations, together with documentation that such supervisor has completed an Environmental Protection Agency-approved training course for asbestos supervisors.

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: _____
Contract Completion Date: _____

Asbestos Lic No. _____
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 _____
_____
_____
Phone No. _____

Disposal Site _____
_____
_____
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 _____

END OF SECTION 02 82 13 – ASBESTOS ABATEMENT

SECTION 028313 - LEAD REMEDIATION

PART 1 **GENERAL**

Tests results are included within the specifications and indicate that paint materials contain lead and a probable leachable lead content of greater than 5ppm.

a. The Contractor shall remove, contain, capture, collect and dispose of the lead containing materials in compliance with all current and pending Federal and State regulations, including the Environmental Protection Agency (EPA), the Resource Conservation and Recovery Act (RCRA), the Hazardous and Solid Waste Amendment (HSWA) the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Occupational Safety and Health Administration (OSHA), and especially 29 CFR 1926 for protection of workers.

b. The Contractor shall bear responsibility for insuring that the waste is properly handled at each stage of operation and properly stored in approved containers. The Campus shall be the generator of the waste, and shall supply its EPA I.D. number and address for use in filling out the manifests. The Contractor shall be responsible for the preparation of the manifest (information and tracking form) to be signed by all applicable parties. The Contractor shall allow two weeks for the Campus to review and sign the completed manifests.

c. The Contractor shall hire an environmental or chemical testing laboratory, accredited by the State of New York, as legally required to sample and test the waste in accordance with EPA method 1311, Toxicity Characteristic Leaching Procedure (TCLP).

d. Waste classified as hazardous shall be shipped off site for treatment, treated on site, or recovered and reused in compliance with Federal and State regulations. Obtain all applicable permits. Provide certification of disposal to the campus. *All wastes must be handled, managed, storage, labeled and disposed of in accordance to federal, state, local and University regulations. The GC will be responsible for the proper disposal of such wastes.*

e. All work areas involving demolition, cutting, modification, etc., to any existing materials shall be considered a lead hazard area per 29 CFR 1926 for the protection of workers unless the contractor removes the potential sources of air borne lead.

END OF SECTION 02 83 13 – LEAD REMEDIATION

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SECTION 028413 – PCB CAULK REMOVAL

PART 1 GENERAL

1.01 **SUMMARY**

A. Test results included within the specifications indicate that certain caulk materials contain PCBs at a concentration greater than 50 parts per million and some also contain asbestos. The following shall apply to the removal of PCB non-remediation waste (PCB bulk product waste) being done under this contract:

B. PCB non-remediation waste: Debris generated from construction materials manufactured with PCBs with a concentration greater than 50 ppm. This debris can be the result of building renovation and demolition projects. This debris is also referenced as PCB bulk product waste.

C. Testing: The Fund and Campus reserve the right to employ an independent testing laboratory to perform testing on the work and air sampling. The Contractor shall be required to cooperate with the testing laboratory.

D. When performing any tasks in work areas that contain this product, the contractor is responsible for PPE (Personal Protective Equipment) for all workers, in accordance with all applicable regulations.

E. Size, location, and quantities of all caulk must be field verified. Information given on the drawings and/or specifications is for bidding purposes only.

F. The Contractor shall have at least one English-speaking supervisor on the job site at all times while the project is in progress.

G. The Contractor will be responsible for any damage resulting from improper storage and accidental spills or releases. The supervisor must be able to communicate fluently with all workers and the Owner.

1.02 **EXECUTION**

A. When working with caulk, work practices shall be performed in a manner that minimizes or prevents airborne dust generation and release to adjacent areas. Aggressive removal techniques, such as power grinding or sanding, shall not be used to remove or dislodge caulk or adjacent materials. The use of hand prying and scraping techniques shall be used to control airborne dust generation. Windows shall be closed and ground covered with plastic from exterior face of building to 10'-0" away from exterior face or furthest point of gravity fall for material dislodged by removal techniques employed, whichever is further. Debris shall be collected and area shall be wiped down to collect dusts in accordance with all applicable regulations. All waste shall TCLP Tested prior to disposal

B. The University requires that all PCB waste products be incinerated at an approved facility and the contractor shall provide a Certificate of Destruction for PCB Waste from the waste incinerator. The University shall be the generator of the waste, and shall supply its EPA I.D. number and address for use in filling out the manifests. The Contractor shall be responsible for the preparation of the manifest (information and tracking form) to be signed by all applicable parties. The Contractor shall allow two weeks for the Campus to review and sign the completed manifests. Submit originals or copies of all pertinent Hazardous Waste Manifests in triplicate to the Fund.

1. Submittals: Prior to commencement of the work on this project, the Contractor must submit the following to the University:

    a. Remediation Plan – General practices and procedures to be followed.
    b. Worker HAZWOPER certifications and proof of medical testing.
    c. Copy of Waste Transporter Permits/License.
    d. Copy of Hazardous Waste Manifest to be used.
    e. Copy of disposal facility license to accept and dispose of PCB waste stream.

2. Prior to the commencement of work involving PCB removal, the Contractor must submit to the University the name of its on-site supervisor responsible for such operations, as well as documentation that the supervisor has completed an OSHA HAZWOPER training course.

1.03 **SCOPE OF WORK**

A. Remove the asbestos and pcb containing tan caulk from the louver and surrounding brick at the West Gym. Hand clean all adjacent surfaces and dispose of water and cleaning materials as bulk pcb product waste. All caulk/sealants, and any masonry scheduled for demolition within 6 inches of pcb containing caulks/sealants shall be disposed of as bulk pcb product waste. Seal existing masonry that was in contact with caulk with clear elastomeric coating to encapsulate any pcb's that have leached into masonry.
B. Remove pcb containing brick expansion joint caulk from the lowest 3' of vertical joint at the West Gym. Hand clean all adjacent surfaces and dispose of water and cleaning materials as bulk pcb product waste. All caulk/sealants, and any masonry scheduled for demolition within 6 inches of pcb containing caulks/sealants shall be disposed of as bulk pcb product waste. Seal existing masonry that was in contact with caulk with clear elastomeric coating to encapsulate any pcb's that have leached into masonry.
C. Remove the pcb containing gray caulk from the louver/door and surrounding brick at the Health Services Building. Hand clean all adjacent surfaces and dispose of water and cleaning materials as bulk pcb product waste. All caulk/sealants, and any masonry scheduled for demolition within 6 inches of pcb containing caulks/sealants shall be disposed of as bulk pcb product waste. Seal existing masonry that was in contact with caulk with clear elastomeric coating to encapsulate any pcb's that have leached into masonry.
D. Remove the pcb containing brown caulk from the window and surrounding brick at the health Services Building. Hand clean all adjacent surfaces and dispose of water and cleaning materials as bulk pcb product waste. All caulk/sealants, and any masonry scheduled for demolition within 6 inches of pcb containing caulks/sealants shall be disposed of as bulk pcb product waste. Seal existing masonry that was in contact with caulk with clear elastomeric coating to encapsulate any pcb's that have leached into masonry.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 84 13 – PCB CAULK REMOVAL

SECTION 04 20 00 - UNIT MASONRY

PART 1 GENERAL

1.01 **SUMMARY**

A. Section Includes:

1. Concrete masonry units.
2. Clay face brick.

1.02 **DEFINITIONS**

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.03 **ACTION SUBMITTALS**

A. Product Data: For each type of product.

B. Shop Drawings: For reinforcing steel. Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.

C. Samples for Verification: For each type and color of exposed masonry unit and colored mortar.

1.04 **INFORMATIONAL SUBMITTALS**

A. Material Certificates: For each type and size of product. For masonry units, include data on material properties material test reports substantiating compliance with requirements.

B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.

1.05 **QUALITY ASSURANCE**

A. Sample PanelsMockups: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.

1. Build sample panels for typical exterior wall in sizes approximately 48 inches (1200 mm) long by 36 inches (900 mm) high by full thickness.

2. Mockups built in-place and accepted by the Owner’s Representative and Architect may be accepted as finished work.

1.06 **FIELD CONDITIONS**

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry

damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 PRODUCTS

2.01 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.02 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

B. Integral Water Repellent: Provide units made with integral water repellent for exposed units.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ACM Chemistries.
b. Euclid Chemical Company (The); an RPM company.
c. Moxie International.

C. CMUs: ASTM C90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
2. Density Classification: Normal weight.

2.03 BRICK

A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:

1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.

2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Clay Face Brick: Facing brick complying with ASTM C216.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Belden Brick Company (The).
   b. Boral Bricks, Inc; Boral Limited.
   c. Glen-Gery Corporation.

2. Grade: SW.
3. Type: FBS.
4. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 4150 psi (28.61 MPa).
5. Initial Rate of Absorption: Less than 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested according to ASTM C67.
6. Efflorescence: Provide brick that has been tested according to ASTM C67 and is rated "not effloresced."
7. Surface Coating: Brick with colors or textures produced by application of coatings shall withstand 50 cycles of freezing and thawing according to ASTM C67 with no observable difference in the applied finish when viewed from 10 feet (3 m).
8. Size (Actual Dimensions): to match existing adjacent units..

2.04 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Masonry Cement: ASTM C91/C91M.

E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.

F. Aggregate for Mortar: ASTM C144.

1. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
2. White-Mortar Aggregates: Natural white sand or crushed white stone.
3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

G. Aggregate for Grout: ASTM C404.

H. Epoxy Pointing Mortar: ASTM C395, epoxy-resin-based material formulated for use as pointing mortar for glazed or pre-faced masonry units (and approved for such use by

manufacturer of units); in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's colors.

I. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Euclid Chemical Company (The); an RPM company.
b. GCP Applied Technologies Inc.
c. Sika Corporation

J. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. ACM Chemistries.
b. Euclid Chemical Company (The); an RPM company.
c. GCP Applied Technologies Inc.

K. Water: Potable.

2.05 **REINFORCEMENT**

A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).

B. Masonry-Joint Reinforcement, General: ASTM A951/A951M.

1. Exterior Walls: Hot-dip galvanized carbon steel.
2. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
3. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
4. Wire Size for Veneer Ties: 0.148-inch (3.77-mm) diameter.
5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
6. Provide in lengths of not less than 10 feet (3 m).

C. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder or truss type with single pair of side rods.

D. Masonry-Joint Reinforcement for Multiwythe Masonry:

1. Ladder type with one side rod at each face shell of hollow masonry units more than 4 inches (100 mm) wide, plus one side rod at each wythe of masonry 4 inches (100 mm) wide or less.
2. Tab type, either ladder or truss design, with one side rod at each face shell of backing wythe and with rectangular tabs sized to extend at least halfway through facing wythe, but with at least 5/8-inch (16-mm) cover on outside face.
3. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of 1/16 inch (1.5 mm)

and maximum vertical adjustment of 1-1/4 inches (32 mm). Size ties to extend at least halfway through facing wythe but with at least 5/8-inch (16-mm) cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.

E. Masonry-Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch- (4.76-mm-) diameter, hot-dip galvanized carbon steel continuous wire.

2.06 **TIES AND ANCHORS**

A. General: Ties and anchors shall extend at least 1-1/2 inches (38 mm) into veneer but with at least a 5/8-inch (16-mm) cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A82/A82M, with ASTM A153/A153M, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A1008/A1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.
3. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.060-inch- (1.52-mm-) thick steel sheet, galvanized after fabrication
2. Tie Section: Triangular-shaped wire tie made from 0.187-inch- (4.76-mm-) diameter, hot-dip galvanized-steel wire.
3. Corrugated-Metal Ties: Metal strips not less than 7/8 inch (22 mm) wide with corrugations having a wavelength of 0.3 to 0.5 inch (7.6 to 12.7 mm) and an amplitude of 0.06 to 0.10 inch (1.5 to 2.5 mm) made from 0.060-inch- (1.52-mm-) thick steel sheet, galvanized after fabrication with dovetail tabs for inserting into dovetail slots in concrete.

E. Rigid Anchors: Fabricate from steel bars 1-1/2 inches (38 mm) wide by 1/4 inch (6.35 mm) thick by 24 inches (610 mm) long, with ends turned up 2 inches (51 mm) or with cross pins unless otherwise indicated.

1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A153/A153M.

2.07 **EMBEDDED FLASHING MATERIALS**

A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:

1. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304, 0.016 inch (0.40 mm) thick.
2. Fabricate continuous flashings in sections 96 inches (2400 mm) long minimum, but not exceeding 12 feet (3.7 m). Provide splice plates at joints of formed, smooth metal flashing.

3. Fabricate metal drip edges from stainless steel. Extend at least 3 inches (76 mm) into wall and 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.
4. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches (76 mm) into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch (19 mm) and down into joint 1/4 inch (6 mm) to form a stop for retaining sealant backer rod.

B. Solder and Sealants for Sheet Metal Flashings: As specified in Section 076000 "Sheet Metal Flashing and Trim."

C. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.08 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

B. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).

2.09 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.10 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime mortar unless otherwise indicated.
3. For reinforced masonry, use portland cement-lime mortar.
4. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.

D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of portland cement by weight.
2. Mix to match Architect's sample.
3. Application: Use pigmented mortar for exposed mortar joints with the following units:

   a. Clay face brick.

E. Grout for Unit Masonry: Comply with ASTM C476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
3. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C143/C143M.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested according to ASTM C67. Allow units to absorb water so they are damp but not wet at time of laying.

3.02 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.03 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

E. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.04 MORTAR BEDDING AND JOINTING

A. Lay hollow brick and CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.

4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

B. Lay solid masonry units and hollow brick with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.05 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).

1. Space reinforcement not more than 16 inches (406 mm) o.c.

2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.

3. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

3.06 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry concrete, where masonry abuts or faces concrete, to comply with the following:

1. Provide an open space not less than 1/2 inch (13 mm) wide between masonry or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry with anchors embedded in masonry joints and attached to structure.

3. Space anchors as indicated, but not more than 24 inches (610 mm) o.c. vertically and 36 inches (915 mm) o.c. horizontally.

3.07 FLASHING, WEEP HOLES, AND CAVITY VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches (100 mm), and through inner wythe to within 1/2 inch (13 mm) of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely

through inner wythe and turn flashing up approximately 2 inches (50 mm) on interior face.

3. At lintels and shelf angles, extend flashing a minimum of 6 inches (150 mm) into masonry at each end. At heads and sills, extend flashing 6 inches (150 mm) at ends and turn up not less than 2 inches (50 mm) to form end dams.
4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
5. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch (13 mm) back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.

3.08 REINFORCED UNIT MASONRY

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches (1520 mm).

3.09 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion thereof.

E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C67 for compressive strength.

F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.

G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C780.

H. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for mortar air content and compressive strength.

I. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.

3.10 REPAIRING, POINTING, AND CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
3. Protect adjacent surfaces from contact with cleaner.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.11 MASONRY WASTE DISPOSAL

A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.

B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 20 00 – UNIT MASONRY

SECTION 04 51 00 - BRICK MASONRY REPAIR

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removal and replacement of brick masonry at through-wall flashing.
2. Brick repointing and mortar mixes.
3. Masonry & Flashing Accessories
4. Painting steel uncovered during the work.
5. Masonry Cleaning.

B. Related Requirements:

1. Section 07 60 00 “Sheet Metal Flashing & Trim.”
2. Section 07 90 00 “Joint Sealants.”

1.02 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

B. Setting Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.

1.03 SUBMITTALS

A. Product Data: For each type of product.

1. Mortar materials and components.
2. Brick Masonry Product Data and test data.

B. Samples for Verification: For the following:

1. Each type of brick unit to be used for replacing existing units. Include sets of Samples to show the full range of shape, color, and texture to be expected. For each brick type, provide straps or panels containing at least four bricks. Include multiple straps for brick with a wide range.
2. Accessories: Each type of accessory and miscellaneous support.

C. Qualification Data: For brick masonry repair specialist.

1.04 QUALITY ASSURANCE

A. Brick Masonry Repair Specialist Qualifications: Engage an experienced brick masonry repair firm to perform work of this Section. Firm shall have completed work similar in material, design,

and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience for masonry repair work.

B. Quality-Control Program: Prepare a written quality-control program for this Project to systematically demonstrate the ability of personnel to properly follow methods and use materials and tools without damaging masonry. Include provisions for supervising performance and preventing damage.

C. Mockups: Prepare mockups of brick masonry repair to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.

1. Masonry Repair: Prepare sample areas for each type of masonry repair work performed. If not otherwise indicated, size each mockup not smaller than two adjacent whole units or approximately 48 inches in least dimension. Construct sample areas in locations in existing walls where directed by Architect unless otherwise indicated. Demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

   a. Replacement: Four brick units replaced.

2. Cleaning: Clean an area approximately 25 sq. ft. for each type of masonry and surface condition.

   a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not test cleaners and methods known to have deleterious effect.
   b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver bricks to Project site strapped together in suitable packs or pallets or in heavy-duty cartons and protected against impact and chipping.

B. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

D. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.

E. Store sand where grading and other required characteristics can be maintained and contamination avoided.

F. Handle bricks to prevent overstressing, chipping, defacement, and other damage.

1.06 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit brick masonry repair work to be performed according to product manufacturers' written instructions and specified requirements.

1. Comply with ACI 530 and The Brick Industry Association recommendations for hot and cold weather conditions, unless noted otherwise. Do not include additives to the mix design unless specifically approved for use.

B. Temperature Limits: Repair brick masonry only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.

C. Cold-Weather Requirements: Comply with the following procedures for masonry repair unless otherwise indicated:

1. When air temperature is below 40 deg F, heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F.
2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for seven days after repair.

D. Hot-Weather Requirements: Protect masonry repairs when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.

E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 - PRODUCTS

2.01 MASONRY MATERIALS

A. Face Brick: As required to complete brick masonry repair work.

1. Brick Matching Existing: Units with colors, color variation within units, surface texture, size, and shape that match existing brickwork and with physical properties; ASTM C216
   a. Grade: SW Severe Weathering.
   b. Type: FBS.
   c. For existing brickwork that exhibits a range of colors or color variation within units, provide brick that proportionally matches that range and variation rather than brick that matches an individual color within that range.
2. At existing nominal 8 x 8 brick, contractor shall salvage existing or replace with matching units.

2.02 MORTAR MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type II, except Type III may be used for cold-weather construction; white or gray, or both where required for color matching of mortar.

B. Hydrated Lime: ASTM C207, Type S.

C. Masonry Cement: ASTM C91/C91M.

D. Mortar Sand: ASTM C144.

1. Exposed Mortar: Match size, texture, and gradation of existing mortar sand as closely as possible. Blend several sands if necessary to achieve suitable match.
2. Colored Mortar: Natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.

E. Mortar Pigments: ASTM C979/C979M, compounded for use in mortar mixes, and having a record of satisfactory performance in masonry mortars. Pigments shall be ASTM C270 compatible.

F. Water: Potable.

2.03 MORTAR MIXES

A. Measurement and Mixing: Measure cementitious materials and sand in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure. Mix materials in a clean, mechanical batch mixer.

1. Mixing Pointing Mortar: Thoroughly mix cementitious materials and sand together before adding any water. Then mix again, adding only enough water to produce a damp, unworkable mix that retains its form when pressed into a ball. Maintain mortar in this dampened condition for 15 to 30 minutes. Add remaining water in small portions until mortar reaches desired consistency. Use mortar within one hour of final mixing; do not retemper or use partially hardened material.

B. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Architect's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not add pigment exceeding 10 percent by weight of the cementitious or binder materials, except for carbon black which is limited to 2 percent, unless otherwise demonstrated by a satisfactory history of performance.

C. Do not use admixtures in mortar unless otherwise indicated.

D. Field Mixes: Field mix mortar materials in the following proportions for repointing:

1. Pointing Mortar by Volume: ASTM C 270, Proportion Specification, 1 part portland cement, 2 part lime, and 6-7 parts sand (Type N). Add mortar pigments to produce mortar colors required. It is intended that the mortar color to be used for this project will match that on the existing building adjacent to the area of work.

E. Bag Mix Pointing Mortar: ASTM C 270, Proportion Specification, Type N unless otherwise indicated; with cementitious material limited to masonry cement or mortar cement. Add mortar pigments to produce mortar colors required. It is intended that the mortar color to be used for this project will match that on the existing building adjacent to the area of work.

2.04 CLEANING MATERIALS

A. Water: Potable.

B. Mild-Acid Cleaner: Manufacturer's standard mild-acid cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid; or ammonium bifluoride or chlorine bleaches.

2.05 ACCESSORY MATERIALS

A. Through-Wall Flashing Materials: Two Piece Counterflashing: Keyed, 28 gauge Stainless Steel with preformed Corners and End Dams supplied by Krando Metal Products, Inc., 505 Parkway, Broomall, PA 19008, Phone: 610-543-4311, Riverside Sheet Metal, Springfield, MA, or Hohmann & Barnard.

B. Flexible Fabric Flashings

1. 8oz Copper Fabric Flashing, non-asphaltic type by York Flashing.

C. Weephole Cellular Vents:

1. Plastic Cell Vents:
   a. #QV Quadro-Vent supplied by Hohmann & Barnard, Inc., 30 Rasons Court, Hauppauge, NY 11788, Phone: 800-645 0616
   b. Mortar Net Solutions CellVent
   c. Heckmann Building Products Cell Vents.
   d. Color to be selected by Architect.

D. Cavity Wall Anchors: ASTM A-666, AISI Type 304, 12 gauge stainless steel, temper as required to support loads imposed without exceeding allowable design stresses, for anchors in direct contract with face brick and the fasteners connecting them to other anchors and to building structure.
1. Hohmann & Barnard, Inc., Type 304 Stainless Steel adjustable veneer anchor HB-5213 or equal products by;
2. Wire-Bond
3. Heckmann Building Products

PART 3 - EXECUTION

3.01 PROTECTION

A. Prevent mortar from staining face of surrounding masonry and other surfaces.

1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
2. Keep wall area wet below rebuilding and repair work to discourage mortar from adhering.

3. Immediately remove mortar splatters in contact with exposed masonry and other surfaces.

3.02 MASONRY REPAIR, GENERAL

A. Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 20 feet away by Architect.

3.03 BRICK REMOVAL AND REPLACEMENT

A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.

1. When removing single bricks, remove material from center of brick and work toward outside edges.

B. Support and protect remaining masonry that surrounds removal area.

C. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.

D. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

E. Remove in an undamaged condition as many whole bricks as possible.

1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
3. Store brick for reuse. Store off ground, on skids, and protected from weather.
4. Deliver cleaned brick not required for reuse to Owner unless otherwise indicated.

F. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.

G. Replace removed damaged brick with other removed brick in good condition, where possible, or with new brick matching existing brick. Do not use broken units unless they can be cut to usable size.

H. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.

1. Maintain joint width for replacement units to match existing joints.

I. Lay replacement brick with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter ends with enough mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
2. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.

J. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.04 PAINTING STEEL UNCOVERED DURING THE WORK

A. Notify Architect if steel is exposed during masonry removal. Where Architect determines that steel is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:

1. Surface Preparation: Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning", as applicable to comply with paint manufacturer's recommended preparation.
2. Antirust Coating: Immediately paint exposed steel with two coats of antirust zinc-rich paint coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

3.05 CLEANING MASONRY, GENERAL

A. Cleaning Appearance Standard: Cleaned surfaces are to have a uniform appearance as viewed from 20 feet away by Architect.

B. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water do not wash over dry, cleaned surfaces.

C. Use only those cleaning methods indicated for each masonry material and location.

1. Brushes: Do not use wire brushes or brushes that are not resistant to chemical cleaner being used.
2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that cleaning methods do not damage surfaces, including joints.

    a. Equip units with pressure gages.
    b. For water-spray application, use fan-shaped spray that disperses water at an angle of 25 to 50 degrees.

D. Perform additional general cleaning and spot cleaning of small areas that are noticeably different when viewed according to the "Cleaning Appearance Standard" Paragraph, so that cleaned surfaces blend smoothly into surrounding areas.

E. After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

F. Mild-Acid Chemical Cleaning:

1. Wet surface with cold water applied by low-pressure spray.
2. Apply cleaner to surface in two applications by brush.
3. Let cleaner remain on surface for period recommended in writing by chemical-cleaner manufacturer or as established by mockup.
4. Rinse with cold water applied by high-pressure spray to remove chemicals and soil.
5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

3.06 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.

1. Do not use metal scrapers or brushes.
2. Do not use acidic or alkaline cleaners.

B. Clean adjacent non-masonry surfaces. Use detergent and soft brushes or cloths.

C. Clean mortar and debris from roof; remove debris from gutters and downspouts. Rinse off roof and flush gutters and downspouts.

D. Remove masking materials, leaving no residues that could trap dirt.

END OF SECTION 04 51 00 – MASONRY REPAIR

SECTION 05 12 00 - STRUCTURAL STEEL

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and Division 1 specification sections, apply to this section.

B. Section 053000: Metal Deck.

1.02 DESCRIPTION OF WORK

A. This section includes structural steel.

1.03 QUALITY ASSURANCE

A. Comply with latest editions of:

1. American Institute of Steel Construction (AISC), "Manual of Steel Construction," including:

   - ANSI/AISC 360, "Specification for Structural Steel Buildings."
   - AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
   - Research Council on Structural Connections (RCSC), "Specification for Structural Joints Using High-Strength Bolts."

2. American Welding Society, Inc. (AWS)

   a. AWS D1.1 "Structural Welding Code - Steel."
   b. AWS C5.4 "Recommended Practices for Stud Welding."

3. Research Council on Structural Connections (RCSC), Educational Bulletin No. 4, "Recommended Erection and Field Inspection Procedures for High-Strength Bolts in Structural Steel Assemblies."
4. American Hot-Dip Galvanizers Association, Inc.; Zinc Institute Inc.

   a. "Inspection Manual for Hot-Dip Galvanized Products."

5. Steel Structures Painting Council (SSPC)
   a. "Surface Preparation Specifications."

B. Qualifications for Welding Work:

1. Qualify welding processes and welding operators in accordance with AWS standards.
2. Provide one of the following certifications for welders to be employed in work.

   a. Certification of satisfactorily passing AWS qualification tests within previous 6 months to perform type of welding in work.
   b. Work record signed by supervisor showing regular employment within previous 6 months to perform type of welding in work.

C. Qualifications for Fabricator, Detailer, and Erector:

1. Fabricator, Detailer, and Erector of structural steel shall have minimum 3 years experience in fabricating, detailing, and erecting structural steel.

    a. Erector Qualifications: Erector shall be AISC Certified Erector, Category CSE.
    b. Fabricator Qualifications: Fabricator shall be AISC Certified Fabricator, Category STD.
    c. AISC Certification for Fabricators and Erectors may be waived at the discretion of Owner, Architect, and Engineer provided acceptable written quality assurance and quality control plan is submitted.

2. Submit written description of ability.
3. At completion of fabrication, Fabricator shall submit Certificate of Compliance to Special Inspector and Code Enforcement Official stating work was performed in accordance with approved Construction Documents in accordance with Chapter 17 of the 2025 *Building Code of New York State.*

1.04 **SPECIAL INSPECTIONS**

A. Refer to Specification Section 014533 and Schedule of Special Inspections.

1.05 **MATERIAL EVALUATION/QUALITY CONTROL**

A. Contractor shall employ testing laboratory acceptable to Engineer and Architect to perform material evaluation tests.

B. Submit testing service qualifications demonstrating experience with similar types of projects.

C. The Registered Design Professionals (RDPs) for Structural Engineering and Architecture will visit construction site at appropriate intervals to determine if work is in general conformance with Contract Documents and specifications. Notify RDPs 48 hours before anticipated time of completion for a given section of work so they may determine if site observations are required. If site observations are required, do not conceal framing until RDPs have had opportunity to make observations.

1.06 **SUBMITTALS**

A. General: Review of submittals will be for general conformance only. Compliance with requirements for materials, fabrication, erection, and dimensioning of structural steel shall be Contractor's responsibility. Resubmitted shop drawings shall have revisions identified and dated.

B. Connections: Submit as follows:

1. Submit proposed connection types and calculations for review before preparing detailed shop drawings.
2. Submit connection calculations in accordance with Option 3 of AISC *Code of Standard Practice for Steel Buildings and Bridges*. Calculations shall be stamped by a licensed Professional Engineer in New York State (Connection Design Engineer) retained by Fabricator.
3. Connections shown on shop drawings shall be coordinated with the submitted connection calculations. Submit written confirmation from Fabricator’s Connection Design Engineer that the shop and erection drawings accurately incorporate the connection designs.

C. Shop Drawings: Submit detailed drawings showing:

1. Submit Shop Drawings showing details of each individual steel shipping piece.
2. Submit Erection Drawings showing location and attachment of individual steel shipping pieces. Including field installation details in Erection Drawings.
3. Reference Contract Drawing number and addendum number in each shop and Erection drawing.
4. Shop and Erection drawings shall show:

    a. Details including cuts, copes, camber, connections, holes, bolts, and other pertinent information.
    b. Connection design loads.
    c. Material, including ASTM designations and grades or manufacturer's data as appropriate.
    d. Welds with size, length, and type.
    e. Sizes and locations of vent and drain holes in galvanized members.

5. Shop and Erection drawings shall be checked by detailer and noted as checked in drawings before submitting. Failure to submit checked Shop and Erection drawings will be cause for their return without review. If drawings are not prepared by detailer under direct control of Fabricator, Fabricator shall stamp each drawing and initial or sign stamp to certify review and approval of drawings and conformance with Fabricator's shop practice and capability.

D. Material Data: Submit to Special Inspector and Engineer laboratory test reports and other data as required to show compliance with specifications. Submit producer's or manufacturer's specifications and installation instructions for the following products:

1. Structural steel, including certified copies of mill reports covering chemical and physical properties.
2. High-strength bolts, including nuts and washers.
3. Unfinished bolts and nuts.
4. Structural steel primer paint if used.
5. Welding electrodes.
6. Post-installed anchors (expansion, sleeve, or chemical adhesive) if used.

E. Bolt Certification: Submit to Special Inspector and Engineer certifications that bolts, nuts, and washers furnished comply with specifications. Submit manufacturer's inspection certificates for mill tests. For fasteners to be accepted, lot numbers on kegs, boxes, or bags must correlate with lot numbers shown in accepted test certificates and identification numbers in mill test reports. Manufacturer's symbol and grade markings must appear on bolts and nuts.

F. Field Modifications: Submit drawings showing field modifications required to conform to actual field conditions or as required to correct errors in shop drawings, fabrication, or erection.

G. Erector's Welding Procedure Specifications: Submit welding procedure specifications for joint types detailed for field welding.

1.07 **PRODUCT HANDLING**

A. Store material in horizontal position on supports above ground.

B. Protect from weather, and keep free of dirt and debris.

C. Handle material carefully so it is not bent or marred.

D. Store bolted fastener components in closed containers protected from moisture and contamination. Remove from protective storage containers only number of fasteners required for one shift. Return fasteners not installed at end of work day to protective storage.

E. Repair or replace damaged materials. Do not incorporate in work fastener components that accumulate rust or dirt.

1.08 **WORKMANSHIP**

A. Contractor shall be responsible for correction of work not conforming to specified requirements. Correct deficient work as directed by Engineer.

B. Remove work found to be defective. Replace with new acceptable work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials shall be new and free from rust.

B. Rolled-Steel Plates and Bars: ASTM A 36 or ASTM A 572, Grade 50. Provide ASTM A 572, Grade 50 where indicated in the drawings.

C. Rolled-Steel Angles, C, MC, S, M, ST and MT Shapes: ASTM A 36 or ASTM A 572, Grade 50. Provide ASTM A 572, Grade 50 where indicated in the drawings.

D. Rolled-Steel W and WT Shapes: ASTM A 992.

E. Steel Pipe: ASTM A 53, Type E or S, Grade B.

F. Hollow Structural Sections (HSS): ASTM A 500, Grade B or C.

G. Unfinished Bolts, Nuts, and Washers: ASTM A 307, Grade A.

H. High-Strength Bolts: ASTM F 3125, Grade A325 or Grade A490, Type 1, plain.

I. Twist-Off-Type, Tension-Control Bolt Assemblies: ASTM F 3125, Grade F1852 or Grade F2280.

J. High-Strength Bolts, Galvanized: ASTM F 3125, Grade A325, Type 1.

K. Threaded Rods: ASTM A 36 unless otherwise indicated in Drawings.

L. Nuts: ASTM A 563. Grade and finish to match bolt or rod type.

M. Washers: ASTM F 436 (ASTM F 844 for ASTM A 307 bolts, A 36 rods and F 1554 Grade 36 anchor rods). Finish to match bolt or rod type.

N. Direct Tension Indicator Washers: ASTM F959 for use in pretensioned and slip-critical joints where direct-tension-indicator method is used. DTI "Squirter" as manufactured by

Applied Bolting Technology or accepted equivalent.

O. Electrodes: E70 and in accordance with AWS.

P. Hot-Dip Galvanizing: Hot-dip galvanize after fabricating in accordance with ASTM A 123. Restraighten members after galvanizing if necessary to be square and true. Items to be hot-dip galvanized are identified in drawings.

Q. Galvanizing Touch-up Compound: Zinc-rich, anti-corrosion paint complying with ASTM A780. “ZRC Galvilite” by ZRC Worldwide; “Roval ZC Galvanizing Repair” by Roval Corporation; “Crown Cold Galvanizing Coating” by Aervoe Industries; “Cold Galvanizing Compound Spray” by Rust-Oleum; or accepted equivalent. Use for field touch-up of hot-dip galvanized surfaces.

2.02 FABRICATION

A. Fabricate structural steel in strict accordance with reviewed shop drawings and referenced standards.

B. Fabricate and assemble structural material in shop to greatest extent possible.

C. Fit stiffeners neatly between girder flanges. Where tight fits are required to transmit bearing, mill or grind ends of stiffeners for even bearing against flange.

D. Provide camber as indicated in drawings. Where no camber is indicated, fabricate steel with mill camber up. Camber by mechanical means or by use of V-heat up to 1,200 degrees F maximum.

E. Remove extension bars or runoff plates upon completing and cooling groove welds. Grind ends of welds smooth and flush with edges of abutting parts.

F. Provide holes for securing other work to structural steel framing. Comply with AISC Specification 360, Section M2 for surface roughness for holes.

G. For members to be hot-dip galvanized, comply with the American Galvanizer’s Association Design Guide: The Design of Products to be Hot-Dip Galvanized After Fabrication.

1. Holes for ventilation and drainage.

   a. Provide holes in galvanized members where indicated in the drawings and as required for ventilation and drainage.
   b. Holes shall be at least 1/2-inch and not more than 1-inch diameter without review and acceptance by the Engineer.
   c. Provide holes at each end of closed members, such as HSS or pipe.
   d. Seal holes with zinc plugs unless otherwise indicated. File plugs flush with the surrounding coating.

H. Unless shown otherwise in drawings, Fabricator shall detail column splice using AISC standard details. Finish ends of column shafts for direct bearing.

2.03 SHOP PAINTING

A. Shop-paint structural steel work that will remain exposed to view in final work or where indicated in drawings. Do not paint members or portions of members to be concealed in final work embedded in concrete or mortar or to receive spray-on fireproofing unless noted

otherwise in drawings.

B. Do not paint the following surfaces:

1. Surfaces within 2 inches of field welds.
2. Surfaces within 1½ inches from center of high-strength, slip-critical (SC) bolts or areas within bolt pattern.
3. Top and bottom flanges of beams to receive field-installed brace angles, shear wall connectors, or hybrid connectors. Coordinate locations with installers.

C. Apply two coats of paint to surfaces that will be inaccessible after assembly or erection. Apply two coats to surfaces indicated to be cold-galvanized.

D. For steel to be spray-fireproofed, clean steel to remove dirt, grease, rust, and loose mill scale in accordance with SSPC-SP3 "Power Tool Cleaning."

E. For steel to be hot-dip galvanized, prepare steel by successive immersion in chemical baths of caustic cleaning, pickling, and flux.

F. After surface preparation, immediately apply structural steel primer paint in accordance with manufacturer's instructions at rate to provide uniform dry-film thickness of 2 mils. Use painting methods that will result in full coverage of joints, corners, edges, and exposed surfaces.

2.04 CONNECTIONS

A. Comply with requirements of this section unless indicated otherwise in drawings.

B. A licensed Professional Engineer (Connection Design Engineer) shall be retained by Fabricator to design connections in accordance with Option 3 in AISC *Code of Standard Practice for Steel Building and Bridges.*

C. Use connection dimensions and sizes complying with AISC-published recommendations and limitations shown in drawings.

D. For shear connections, use only connections published in the AISC *Steel Construction Manual* without modification unless otherwise indicated in Drawings.

E. Connections shown in the Drawings are representative details. Design connections to comply with the requirements and limitations as shown in the Drawings.

F. Weld or bolt shop connections.

G. Bolt field connections wherever possible.

H. Minimum Capacity of Beam Connections: For connections not detailed, provide connection capacity for shear, axial, and moment reactions shown in drawings. If reactions are not shown in drawings, base on either Allowable Stress Design or Load and Resistance Factor Design as follows:

1. Shear Connections:

a. At least 50 percent of uniform load from Maximum-Uniform Load Tables in AISC *Steel Construction Manual*, Part 3, for given steel member (ASD or LRFD, as appropriate).
b. At least 70 percent of uniform load from Maximum Uniform Load Tables in

AISC Steel Construction Manual, Part 3, for beams and girders with steel headed stud anchors (ASD or LRFD, as appropriate).

c. Concentrated loads near supports must be added.

2. Moment Connections:

a. Design moment connections for full bending capacity for given steel member.

I. Beam connections to columns shall be in accordance with AISC and comply with the following.

1. Use AISC Double-Angle Shear Connection for beam connections welded to faces of HSS columns having a workable flat of 6.75 inches or greater and to faces of W column flanges that have a width of 6.75 inches or greater.
2. Use AISC Double-Angle Shear Connection for beam connections bolted to faces of W column flanges that have a width greater than 6 inches.
3. Use AISC Single-Plate Shear Connection for beam connections to faces of columns smaller than required for double-angle shear connection.
4. AISC Seated Connections are permitted as an alternative to double-angle and single-plate shear connections.

J. Use AISC Single-Plate, Single-Angle, Double-Angle, or End-Plate Shear Connection for beam-to-beam connections.

K. Provide high-strength or unfinished threaded fasteners installed snug-tight for bolted bearing connections of secondary framing members to primary members including girts, door framing systems, and roof openings.

L. Provide high-strength fasteners for principal bolted connections unless otherwise indicated.

M. Fabricator shall provide connections to properly transmit total reactions, moments, and axial forces either indicated in drawings or reasonably inferred from information provided.

N. Provide snug-tightened joints using bearing bolts with thread condition N for bolted connections unless indicated otherwise. Provide pretensioned or slip-critical joints where shown or noted in drawings. For slip-critical joints, provide AISC Class A faying surface condition.

O. Remove burrs that prevent solid seating of connected parts.

P. ASTM F 3125 Grade F1852 or Grade F2280, twist-off-type, tension-control bolt assemblies may be used at snug-tightened. Compliance with RCSC Specifications for pre-installation testing and installation inspection is mandatory for the use of twist-off type, tension-controlled bolted connections, including pretensioned or slip-critical joints.

PART 3 EXECUTION

3.01 JOB CONDITIONS

A. Examine conditions under which work shall be erected. Do not proceed until unsatisfactory conditions are corrected.

3.02 **ERECTION**

A. Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of a complete frame or structure before permanently fastening.

B. Fit up connections to be field welded in compliance with AWS standard tolerances for review by the Special Inspector or Testing Agency prior to field welding.

C. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact after assembly.

D. Perform necessary adjustments to compensate for discrepancies in elevations and alignment. Level and plumb individual members of structure within specified tolerances.

E. Contractor may field modify anchor rods and embedded structural supports incorrectly located or damaged after installation as indicated in Section 033000 and tested by Testing Agency. Submit documentation showing proposed field modification for review and acceptance by Engineer before beginning.

F. Splice members only where shown or specified.

G. Maintain work in stable condition during erection.

H. Install snug-tightened, pretensioned, and slip-critical bolted joints to comply with RCSC “Specification for Structural Joints Using High-Strength Bolts” and to comply with RCSC Educational Bulletin No. 4, “Recommended Erection and Field Inspection Procedures for High-Strength Bolts in Structural Steel Assemblies.” Compliance with RCSC Specifications and Bulletins is mandatory for installation of all high-strength bolted connections including pretensioned or slip-critical joints.

I. Install field connections and framing as detailed in Contract Documents and accepted shop drawings. If Contractor finds field modifications are necessary, submit documentation of proposed field modifications to Architect and Engineer for review and acceptance before beginning.

1. Use of thermal cutting for field modifications is prohibited unless documented and accepted by Engineer before beginning.
2. Use of thermal cutting for enlarging or cutting bolt holes in field is prohibited.

3.03 **TOLERANCES**

A. Tolerances shall be within limits in AISC "Code of Standard Practice.”

B. Fabrication and mill tolerance shall be within limits in AISC “Standard Mill Practice.”

3.04 **TOUCH-UP PAINTING**

A. After erection is complete, touch up paint-damaged shop coats and welded areas with shop primer paint applied in accordance with manufacturer's instructions.

B. Touch up paint damaged galvanized surfaces and welded areas with galvanizing touch-up compound or cold-galvanizing compound applied in accordance with manufacturer's instructions.

C. Prepare surfaces of hot-dip galvanized members where the galvanization was omitted, or

damaged in accordance with SSPC-SP3 "Power Tool Cleaning." Prepare field-welded galvanized members similarly.

D. Remove weld slag before applying touch-up paint.

3.05 TEMPORARY SHORING AND BRACING

A. Provide temporary shoring and bracing members as required with connections of sufficient strength to bear imposed loads.

B. Remove temporary members and connections when permanent members are in place and final connections are made.

C. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

3.06 PROTECTION

A. Do not use members for storage or work platforms until permanently secured.

B. Do not exceed load capacity of members with construction loads.

3.07 WELDING TO EXISTING STEEL

A. Clean area to be welded using mechanical grinders and solvents to remove paint, rust, and other materials.

B. Use E7018, low-hydrogen electrodes stored in ovens as prescribed by AWS. Preheat steel to be welded and maintain temperatures as prescribed by AWS.

END OF SECTION 05 12 00 – STRUCTURAL STEEL

SECTION 05 30 00 - METAL DECK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and Division 1 specification sections, apply to this section.

B. Section 05 12 00: Structural Steel.

1.02 DESCRIPTION OF WORK

A. This section includes steel deck units for floor and roof applications.

1.03 QUALITY ASSURANCE

A. Codes and Standards: Comply with latest edition of:

1. American Iron and Steel Institute (AISI) "Specification for the Design of Cold Formed Steel Structural Members."
2. Steel Deck Institute (SDI).
    a. "Design Manual for Composite Decks, Form Decks, and Roof Decks."
    b. "Diaphragm Design Manual."
3. American Welding Society Inc. (AWS).
    a. AWS D1.1 "Structural Welding Code - Steel."
    b. AWS D1.3 "Structural Welding Code - Sheet Steel."
    c. AWS C5.4 "Recommended Practices for Stud Welding."

B. Qualifications for Welding Work

1. Use qualified welding processes and welding operators in accordance with AWS standards.
2. Provide one of the following certifications for welders to be employed in work.
    a. Certification of satisfactorily passing AWS qualification tests within previous 6 months to perform type of welding in work.
    b. Work record signed by supervisor showing regular employment within previous 6 months to perform type of welding in work.

C. Underwriters' Label: Provide metal floor deck units listed in Underwriters' Laboratories "Fire Resistance Directory," with each deck unit bearing the UL label and marking for specific system detailed.

D. FM Listing: Provide steel roof deck units that have been evaluated by Factory Mutual System and are listed in "Factory Mutual Approval Guide" for Class 1, fire-rated construction.

1.04 SPECIAL INSPECTIONS

A. Refer to Specification Section 01 45 33 and Schedule of Special Inspections.

1.05 **MATERIAL EVALUATION/QUALITY CONTROL**

A. Preconstruction Testing: Contractor shall employ testing laboratory acceptable to Engineer and Architect to perform material evaluation tests.

B. Submit testing service qualifications demonstrating experience with similar types of projects.

C. Contractor shall secure services of company field advisor from manufacturer of powder-actuated or pneumatically driven fasteners used to anchor metal deck. Field advisor shall be certified in writing by manufacturer to be technically qualified in product installation. Personnel involved solely in sales do not qualify. Field advisor shall be present at beginning of installation of product and as required during duration of project to:

1. Render technical assistance to Contractor regarding installation procedures of product to satisfy warrantee or guarantee requirements.
2. Provide specialized training in use of product to Contractor's personnel.
3. Verify correct fastener is being used for each structural substrate type and thickness.
4. Verify proper tools and application procedures.
5. Familiarize Contractor/Owner/Architect/Engineer with entire system, including inspection techniques.
6. Answer questions that arise.

D. Field advisor shall prepare a written report summarizing information listed above. Submit report to Special Inspector, Contractor, Owner, Architect, and Engineer.

E. Contractor shall be responsible for expenses of field advisor and verifying credentials of advisor.

F. The Registered Design Professionals (RDPs) for Structural Engineering and Architecture will visit construction site at appropriate intervals to determine if work is in general conformance with Contract Documents and specifications. Notify the RDPs 48 hours before anticipated time of completion for given section of work so that they may determine if site observations are required. If site observations are required, do not conceal metal deck until the RDPs have had opportunity to make observations.

1.06 **SUBMITTALS**

A. General: Review of submittals is for general conformance only. Compliance with requirements for materials, fabricating, erection, and dimensions is Contractor's responsibility.

B. Shop Drawings: Submit detailed drawings showing:

1. Reference Contract Drawing number including addendum number in each shop drawing.
2. Panel layout.
3. Anchorage details showing locations and size of welds or mechanical fasteners if used.
4. Each condition requiring closure panels.
5. Location and attachment of accessories.
6. Supplementary framing furnished and required.
7. Special conditions; opening locations.
8. Side-lap fastening.

9. Material thickness.
10. Deck finish.
11. Cross-section of panel with dimensions.
12. Layout, size, material, and quantity of shear connectors.
13. Panels requiring shoring from panel layout.
14. Powder-actuated corrosion resistant fasteners.

C. Calculations: Submit calculations for powder-actuated fasteners indicating required diaphragm capacity has been provided in accordance with the Performance Requirements section of this Specification and the Drawings.

D. Manufacturer's Data: Submit to Special Inspector and Engineer laboratory test reports and other data as required to show compliance with specifications. Submit producer's or manufacturer's specifications and installation instructions for the following products:

1. Sheet steel deck, including certified copies of mill reports covering chemical and physical properties.
2. Shop primer paint if used.
3. Welding electrodes.
4. Mechanical and side-lap fasteners.

1.07 **PERFORMANCE REQUIREMENTS**

A. Install and anchor deck to develop 240 pounds per linear foot of diaphragm shear resistance unless noted otherwise.

1.08 **PRODUCT HANDLING**

A. Store materials in approximately horizontal position on supports above ground with one end elevated for drainage.

B. Protect from weather, and keep free of dirt and debris.

C. Ventilate to avoid condensation.

D. Handle material carefully so it is not bent or marred.

E. Replace damaged materials at no cost to Owner.

1.09 **WORKMANSHIP**

A. Contractor shall be responsible for correction of work not conforming to specified requirements. Correct deficient work as directed by Architect.

B. Remove work found to be defective. Replace with new acceptable work.

PART 2 - PRODUCTS

2.01 **DECK MATERIALS**

A. Materials shall be new and free from rust.

B. Uncoated or Painted (Shop-primed) Steel Deck: ASTM A 1008 with a minimum 40,000 psi yield strength.

C. Galvanized Steel Deck: ASTM A 653, with galvanized coating Designation G 60. Minimum 40,000 psi yield strength.

D. Roof Deck Units:

1. Type: “B or N” by Canam, Vulcraft, Consolidated System, Inc., New Millennium, or accepted equivalent.
2. Size: As shown in drawings.
3. Finish: Galvanized unless noted otherwise in drawings.

2.02 **ACCESSORIES**

A. General: Provide manufacturer’s standard accessory materials for deck that comply with requirements indicated.

B. Structural Shapes, Bars, and Plates: ASTM A 36. Refer to Section 051200.

C. Electrodes: In accordance with AWS.

D. Welding Washers: As required by deck manufacturer.

E. Mechanical Fasteners: Corrosion-resistant, low-velocity, powder-actuated, or pneumatically driven carbon steel fasteners or self-tapping screws.

1. “X-ENP-19 L15” or “X-HSN-24” powder-actuated fasteners by Hilti, or accepted equivalent.

F. Sidelap Fasteners: Corrosion-resistance, hexagonal washer head: self-tapping, carbon steel screws. No. 10 minimum diameter.

G. Sheet Metal Accessories: ASTM A 653, SS Grade 33, commercial-quality steel sheets with G 60 galvanized coating.

1. Pour stops and Girder Fillers: Provide 16-gauge-minimum thickness unless noted otherwise.
2. Metal Cover Plates: Not less than thickness of deck.
3. Metal Cell Closures: Provide 18-gauge-minimum (0.045-inch) thickness.
4. Roof Sump Pans: Provide 14-gauge-minimum (0.0747) thickness.
5. Provide 20-gauge-minimum thickness for other accessories unless noted otherwise.

H. Flexible Cell Closures: Manufacturer's standard vulcanized, closed-cell, synthetic rubber.

I. Shop Primer Paint: For application to metal surfaces chemically cleaned and phosphate chemical treated.

J. Touch-up Material:

1. Galvanizing Touch-up Compound: Zinc-rich, anti-corrosion paint complying with ASTM A780. “ZRC Galvilite” by ZRC Worldwide; “Roval ZC Galvanizing Repair” by Roval Corporation; “Crown Cold Galvanize Coating” by Aervoe Industries; “Cold Galvanizing Compound Spray” by Rust-Oleum; or accepted equivalent. Use for field touch-up of galvanized sheet metal.
2. Steel Primer Paint: Use primer compatible with finish paint specified in Division 9 for repair of painted surfaces.

2.03 **FABRICATION**

A. General: Form deck units in lengths to span three or more supports.

1. Provide flush or 2-inch nested end laps for roof deck, except at joists provide 4-inch nested end laps.
2.
3. Use nested side laps.
4. Prior to shipping decking to job site, manufacturer shall wire-brush, grind, clean, and paint scarred areas (weld marks on cellular deck, scratches, rust spots, etc.) on top and bottom surfaces of decking units.

    a. Touch up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
    b. Touch up painted surfaces with shop primer paint applied in accordance with manufacturer's instructions.
    c.
    d. Unrepaired scarred areas will be evaluated by Architect and may be cause for rejection of deck units.

B. Metal Cover Plates: Fabricate metal cover plates for end-abutting floor deck units. Form to match contour of deck units and approximately 6 inches wide.

C. Metal Cell Closures: Fabricate metal closure strips for cell raceways and openings between decking and other construction. Form to provide tight-fitting closures at open ends of cells or flutes and sides of decking.

PART 3 - EXECUTION

3.01 **JOB CONDITIONS**

A. Examine conditions under which work shall be erected. Do not proceed until unsatisfactory conditions are corrected.

3.02 **ERECTION**

A. General: Install deck and accessories in accordance with manufacturer's recommendations, and accepted shop drawings.

B. Cut and fit units and accessories around projections through decking. Make cuts neat and square.

C. Do not use cutting torches.

D. Position deck on supporting steel framework and adjust to final position with ends bearing a minimum of 2 inches on supporting members and accurately aligned end to end before being permanently fastened.

E. Do not install deck in a single span condition unless noted otherwise in Drawings. Lay out deck to provide a minimum two-span condition. Notify Engineer if single span deck is required.

F. Do not stretch or contract side-lap interlocks.

G. Align deck units for entire length of run of cells and with close alignment between cells at ends of abutting units.

H. Place deck units flat and square, secured to adjacent framing without warp or deflection.

I. Coordinate and cooperate with structural steel erector in locating deck bundles to prevent overloading of structural members.

J. Fastening Deck Units:

1.
2. Fasten roof deck units to steel supporting members to resist forces listed in drawings or under performance requirements. Minimum fastening shall be by nominal 5/8-inch-diameter puddle welds or elongated welds of equal strength, spaced not more than 12 inches at every support and closer where indicated. In addition, secure deck to each supporting member in ribs where side laps occur.
3. Comply with AWS requirements and procedures for manual shielded metal arc-welding, appearance and quality of welds, and methods used in correcting welding work.

    a. Use welding washers where recommended by deck manufacturer.

4. Mechanical fasteners may be used in lieu of welding. Locate fasteners and install in accordance with the manufacturer's accepted submittal.
5. Mechanically fasten side laps of adjacent deck units between supports at intervals not exceeding 36 inches on center using No. 10 or larger self-tapping screws unless otherwise specified by manufacturer. Button punching not permitted.

K. Cell closures: Install metal cell closures at open uncovered ends and edges of decking to provide complete decking installation.

1. Fasten using tack weld or install No. 10 or larger self-tapping screws at 4 feet on center.
2. At Contractor’s option, provide flexible cell closures instead of metal cell closures wherever their use will ensure complete closure. Install with adhesive in accordance with manufacturer's instructions.

L. Hanger Slots or Clips: Provide UL-approved punched hanger slots between cells or flutes of lower element where floor deck units are to receive hangers for support of ceiling construction, air ducts, diffusers, or lighting fixtures.

1. Hanger clips designed to clip over male side lap joints of floor deck units may be used instead of hanger slots.
2. Locate slots or clips at not more than 14 inches on center in both directions, not over 9 inches from walls at ends, and not more than 12 inches from walls at sides unless otherwise indicated.
3. Provide manufacturer's standard hanger attachment devices.

M. Joint Covers: Provide metal joint covers at abutting ends and changes in direction of floor deck units except where taped joints are required.

3.03 DECK REINFORCEMENT

A. Unless noted otherwise, reinforce roof deck as follows:

1. For deck openings less than 15 inches wide and not supported by structural members, fabricate from minimum 18-gauge, galvanized sheet metal. Fusion-weld to bottom surface of deck and extend at least 12 inches wider and longer than opening. Weld at each corner, and provide two welds to each rib crossed. Weld edges parallel with deck at 12 inches on center.
2. For deck openings from 15 inches to 30 inches wide and not supported by structural members, weld 2-inch x 2-inch x 1/4-inch steel angle to underside of deck at right angles to deck ribs. Extend angles three ribs beyond each side of opening and puddle weld. Reinforce side of opening parallel to ribs with 18-gauge sheet metal 12 inches wide placed on bottom surface of decking. Weld plate at each corner and at 12 inches on center along edges.
3. For deck openings greater than 30 inches wide, provide structural steel for edge support around entire opening. Frame into adjacent structural members.
4. For sleeved penetrations smaller than rib width, no reinforcing is required.

3.04 TOUCH-UP PAINTING

A. After installing decking, wire-brush, clean, and paint scarred areas (scratches, weld burn marks, etc.), welds (shop and field), and rust spots on top and bottom surfaces of decking units and supporting steel members.

1. Touch-up paint damaged galvanized surfaces and welded areas with galvanizing touch-up compound applied in accordance with manufacturer's instructions.
2. Touch-up paint damaged shop priming coats with shop primer paint applied in accordance with manufacturer's instructions.
3.

B. In areas where shop-painted surfaces are to be exposed, apply touch-up paint to blend into adjacent surfaces.

3.05 CLEANING

A. Clean debris from metal deck prior to installing roofing materials. Remove dirt, debris, weld flux and other items not meant to remain as part of the final Work. Coordinate cleaning method with site conditions.

3.06 PROTECTION AND LOADING

A. Do not use units for storage or for work platforms until deck is permanently secured to the supporting structure.

B. Do not exceed load capacity of deck with construction loads. Limit temporary construction loads to 20 psf.

C. Do not suspend mechanical, electrical, or plumbing items from roof or floor form deck. Suspend loads directly from main framing or from supplemental framing installed between main framing.

1. Refer to mechanical, electrical, and plumbing specifications for hangers and supplemental framing required to attach these items to main framing.

3.07 TOLERANCES

A. Maximum variation in deck unit alignment shall be 1/4 inch in 40 feet.

END OF SECTION 05 30 00 – METAL DECK (06/25)

SECTION 05 40 00 - LIGHT GAUGE METAL FRAMING

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope

The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance and all related and incidental items to furnish and install all work of this section as shown by the drawings and specifications.

1. All axially or wind loaded light gauge steel.
2. Accessory items, including but not limited to tracks, bridging, fasteners, etc.

1.02 QUALITY ASSURANCE

A. Inspection and Quality Control

1. Steel framing manufacturer shall provide a qualified representative for periodic on site review of fabrication and instruction in accordance with manufacturer's recommendations.
2. Owner's testing agency may inspect the maintenance of a quality control program including spot checking weldments and welding procedures in accordance with A.W.S. Standards.
3. Inspection by Owner's testing agency is not intended to be comprehensive or complete full responsibility for quality control shall remain with the Contractor.

B. Markings

1. All structural studs shall be marked with the manufacturer's name and gauge size of material.

C. Standards

1. Work shall meet the requirements of the following standards:

a. American Iron and Steel Institute (also design of cold formed steel structural members).
b. American Welding Society (A.W.S.) D.1.3 Structural Welding Code and Sheet Metal.
c. Military Specification MIL-P-21035, Paint, High Zinc Dust, Content Galvanizing Repair.

1.03 SUBMITTALS

A. Product Data

1. Manufacturer's product information and installation instructions for each light gauge framing and accessory item.

B. Shop Drawings

1. For special components and installations not fully dimensioned or detailed in manufacturer's product data include:

    a. Drawings for framing members showing size, gauge, number, type, location and spacing. Indicate supplemental strapping, bracing, splices, bridging, accessories and detail required for proper installations.
    b. Prefabricated framing with individual panel drawing for each condition including configuration, dimension, gauges, materials, attachments and panel location.
    c. Structural Calculations

2. Submit structural calculations prepared by the manufacturer. Calculations shall include, but are not limited to:

    a. Description of design criteria.
    b. Engineering analysis depicting stress and deflection (stiffness requirements for each framing application.
    c. Selection of framing components and Accessories.
    d. Verification of attachments to structure and/or adjacent framing components.

1.04 **PRODUCT DELIVERY, STORAGE AND HANDLING**

A. Delivery

1. Deliver to project site in manufacturer's unopened containers, bundles, etc., fully identified with name, brand, gauge, type or panel number.

B. Storage

1. On a flat plane off ground in a dry, ventilated space or protect with suitable waterproof coverings.
2. Dented, bent or twisted material shall be removed from the Job site.

PART 2 PRODUCTS

2.01 **GALVANIZED MATERIAL**

A. Galvanized studs 16-gauge or as detailed. All galvanized track, bridging, end closures and accessories shall be formed from steel that corresponds to the requirements of ASTM A653/A653M-04a Structural Quality Grade 33 with minimum yield of 33,000 psi.

B. All galvanized studs, joists, track, bridging and accessories shall be formed from steel having G-60 galvanized coating meeting the requirements of ASTM A525-93.

C. Studs shaped to be 'C' Type with 1.5 flange and flange return lip.

2.02 ACCESSORIES

A. Mineral Wool Insulation: as detailed.

1. Roxul Comfortbatt, Thermafiber Ultrabatt, or JM TempControl.

PART 3 EXECUTION

3.01 FABRICATION

A. General:

1. Framing components may be prefabricated into panels prior to erection. Fabricate panels plumb, square, true to line and braced against racking with joints welded. Lift of prefabricated panels in a manner to prevent damage or distortion.

B. Fastenings

1. Attach components with mechanical fasteners. Localized welding is permitted if validated via calculation by the contractor’s delegated engineer and approved by the architect.

C. Touch up all welds with zinc primer.

D. Splicing of axially loaded members shall not be permitted.

3.02 INSTALLATION

A. Manufacturer's Instructions:

1. Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations, unless otherwise indicated.

B. Runner Tracks:

1. Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as recommended by stud manufacturer for type of construction involved, except do not exceed 24" o.c. spacing for powder-driven fasteners, or 16" o.c. for other types of attachment. Provide fasteners at corners and ends of tracks.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

D. Install supplementary framing, blocking and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings and similar work requiring attachment to the wall or partition. Where type of supplementary support is otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.

E. Installation of Wall Stud System:

1. Secure studs to top and bottom runner tracks at both inside and outside flanges.

F. Frame wall openings larger than 2'-0" square with double stud at each jamb of frame except where more than 2 are shown or indicated in manufacturer's instructions. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with

stud shoes or by welding, and space jack studs same as full-height studs of wall. Secure stud system wall opening frame in manner indicated.

G. Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to the manufacturer's recommendation. Without supportive data, the minimum bridging shall be 5'-0" on center for wind loaded walls and 3'-4" on center for axial loaded walls.

H. Provision for structure vertical movement shall be provided where indicated on the plans using vertical slide clips or other means in accordance with manufacturer's recommendations.

3.03 **TOLERANCES**

A. Vertical alignment (plumbness) of studs shall be within 1/960th (1/8" in 10'-0") of span.

B. Horizontal alignment (levelness) of walls shall be within 1/960th (1/8" in 10'-0") of their respective length.

C. Spacing of studs shall not be more than 1/8"+- from designated spacing.

D. Prefabricated panels shall not be more than 1/8" out of square with length of that panel.

END OF SECTION 05 40 00 - LIGHT GAUGE METAL FRAMING

SECTION 05 50 00 – METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Miscellaneous framing
2. Metal Ladders
3. Interior Metal Stair and Handrail.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:
1. Fasteners.

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

PART 2 - PRODUCTS

2.1 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

C. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.

2.2 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

2.3 MISCELLANEOUS MATERIALS

A. Shop Primers: Provide primers that comply with Section 099000 "Painting”.

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.4 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

2.5 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

C. Galvanize exterior miscellaneous steel trim.

D. Prime exterior miscellaneous steel trim with primer specified in Section 099000 "Painting."

2.6 METAL LADDERS

A. General:
1. Comply with ANSI A14.3

B. Steel Ladders:
1. Space siderails 18 inches apart unless otherwise indicated.
2. Siderails: Continuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges.
3. Rungs: 1-inch-square steel bars.
4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
5. Provide nonslip surfaces on top of each rung.
6. Prime, including brackets and fasteners, with zinc-rich primer. Paint in accordance with specification 09 90 00.

2.7 METAL STAIRS AND HANDRAIL

A. General:
1. Comply with ANSI A14.3.

B. Steel Stairs:
1. Components as shown in details.
2. Prime, including brackets and fasteners, with zinc-rich primer. Paint in accordance with specification 09 90 00.

C. Handrail:
1. See section 2.4 of this specification.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

A. Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 INSTALLATION OF MISCELLANEOUS STEEL TRIM

A. Anchor to concrete construction to comply with manufacturer's written instructions.

3.4 REPAIRS

A. Touchup Painting:

1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 05 50 00

SECTION 05 51 50 - ALUMINUM LADDERS

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Heavy Duty Fixed Aluminum Wall Ladders.
2. Ladder Cable Fall Arrest System

B. Related Work:

1. Section 06 10 00 - Rough Carpentry.
2. Section 07 72 00 - Roof Accessories. Miscellaneous Supports.

1.02 QUALITY ASSURANCE

A. Application Qualifications: All welding, whether performed in the shop or field, shall be done by operators who have been certified by tests as prescribed in the "Standard Qualifications Procedure" of the American Welding Society.

1.03 REFERENCES

A. ANSI A14.3: Ladders - Fixed - Safety Requirements.

B. OSHA 1910.27: Fixed Ladders.

1.04 SHOP DRAWINGS

A. Submit shop drawings. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Indicate component details, materials, finishes, connection and joining methods, and the relationship to adjoining work.

B. Include erection drawings, elevations, and details where applicable.

C. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.

D. Submit all product data and manufacturers' catalogs for approval.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Product Delivery: All items to be firmly supported during transit, loading and unloading; no dumping from trucks permitted.

B. Storage: When ladder arrives on-site, store indoors if not immediately installed in permanent location.

C. Handling: Done in a manner to prevent abrasion of mill finish and bending of components.

1.06 WARRANTY

A. Limited Warranty: One year against defective material and workmanship, covering parts only, no labor or freight. Defective parts, if deemed so by the manufacturer, will be replaced at no charge, freight excluded, upon inspection at manufacturer's plant which warrants same.

PART 2 PRODUCTS

2.01 Manufacturer's:

A. Precision Ladders, LLC, 5727 Superior Drive, TN 37814, Phone (800) 225-7814

B. O'Keeffe's, Inc., 325 Newhall St. San Francisco, CA 94124 , Phone (888) 653-3333

C. ACL Industries, Inc., 179 Elm St., Manchester, NH 03101-2706 , Phone (603)-668-1276

2.02 **MATERIALS**

A. Vertical Fixed Ladder w/ Walk-Thru

1. Capacity: Unit shall support a 1000 lb loading without failure.
2. Side Rails: 1½" Diameter Schedule 40 Aluminum Pipe
3. Serrated Aluminum Safety Rung: 1¼" x 1½" x .125"
4. Mounting Bracket: 8½" x 4" x ¼" angle
5. Walk-Thru Platform: Aluminum (IF SHOWN ON DRAWINGS)

a. Frame: 6 x 2.03 AISC Aluminum Channel.
b. Side Rails: 42 inch side rail extension for through ladder exits.
c. Serrated Aluminum Safety Tread: 5½" x 1½" x .125"

2.03 **LADDER CABLE FALL ARREST SYSTEM**

A. OSHA complaint Cable fall arrest system consisting of a cable trolley and stainless steel cable fitted to the ladder.

B. System shall include all components, brackets, cable, cable guides and harness for a complete system.

C. Cable system as provided by CAI Safety Systems, Corona, CA, Ph 888-246-6999, Miller Vi-Go Ladder Climbing Safety Systems, 3M Lad-Saf System, or Frontline VLCS Ladder Vertical Lifeline Systems.

2.04 **FABRICATION**

A. Completely fabricate ladder ready for installation before shipment to the site.

B. Completely fabricate handrail components ready for field assembly to ladder before shipment to site.

2.05 **FINISH**

A. Mill Finish on all Aluminum Ladder components

PART 3 EXECUTION

3.01 PREPARATION

A. Field Measurements: Verify all measurements at project site, coordinate with other trades.

B. Obtain Architect's approval prior to site cutting or making adjustments not scheduled.

C. Make provision for erection loads with temporary bracing, keep work in alignment.

3.02 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects per manufacturer’s instructions.

B. Perform field welding in accordance with AWS D1.1.

C. Clean surfaces of all foreign matter after installation.

3.03 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 05 51 50 - ALUMINUM LADDERS

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work

The work of this Section includes all labor, materials, plant, tools equipment, trucking, insurance and all related items to furnish and install all work of this Section as shown by the Drawings and the Specifications.

1. All rough work usually performed by carpenters.
2. Rough hardware
3. Framing with dimension lumber.
4. Rooftop equipment bases and support curbs.
5. Wood blocking, cants, and nailers.
6. Wood furring.
7. Wood sleepers.

B. Related work specified elsewhere:

1. Division 07 – Roof System and accessories

1.02 QUALITY ASSURANCE

A. Grading rules of the following Associations apply to materials furnished under this section:

1. American Plywood Association (APA).
2. National Particle Board Association (NPB).
3. Western Wood Products Association (WWPA).
4. Southern Forest Products Association (SFPA).
5. National Hardwood Lumber Association.
6. American Wood Preservers Association (AWPA)

B. Grade Marks: Identify all plywood and lumber by official grade mark.

C. All lumber shall be kiln dried and well seasoned, and of grade specified.

1.03 SUBMITTALS

A. Certification

1. Pressure Treated Wood: Submit certification by the treating plant stating chemicals and process used, net amount of salts retained and conformance with applicable standards if pressure treated lumber is called out on drawings.
2. Submit in writing choice of stress grade lumber for approval.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Metal framing anchors

C. Field Test Results for composite nail board sheathing: Results of fastener pull-out resistance test results, performed by a qualified manufacturer's representative.

1.04 **PRODUCT DELIVERY, STORAGE AND HANDLING**

A. Protect lumber from weather in transit and at project site, keep raised off the ground, covered with watertight covering, ventilated, and block passage of ground moisture.

B. Store in accordance with A.P.A. "Panel Care and Installation" Guide.

PART 2 PRODUCTS

2.01 **STRESS GRADE LUMBER**

A. Size as indicated, No. 2 Douglas Fir, Hem Fir, Western Spruce, dressed four sides (S4S) Kiln Dried, 15% maximum moisture content. Lumber shall develop a minimum extreme fiber stress 1000 lbs/square inch.

2.02 **PRESERVATIVE TREATED LUMBER AND PLYWOOD**

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.

B. All treated lumber shall bear a mark with the treatment quality of an inspection agency approved by the ALSC Board of Review.

C. After treatment, lumber shall be kiln dried to maximum 19% moisture content, plywood to maximum 15% moisture content.

D. Application: Treat all rough lumber unless otherwise indicated, items indicated on the drawings, and the following:

1. Wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete.

2.03 **FIRE-RETARDANT-TREATMENT**

A. General: Where fire-retardant-treated materials are indicated, materials are to comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials are to comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898. Use for exterior locations and where indicated.

C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat all rough carpentry unless otherwise indicated.
1. Framing for raised platforms.
2. Concealed blocking.
3. Framing for non-load-bearing exterior walls.
4. Roof construction.

2.04 ROUGH HARDWARE

A. Expansion anchors: Meeting Federal Spec. FF-S-325, Group II Type 4 Class 1 and zinc plated in accordance with Federal Spec QQ-Z-325C, Type II, Class 3. Use: Anchoring to concrete.

B. Sleeve Anchors: Meeting Federal Spec. FF-S-325, Group II, Type 3, Class 3, zinc plated head type as appropriate for application. Use: Anchoring to concrete block.

C. Miscellaneous Hardware: Toggle bolts, Lag screws/bolts, nails etc., non-rusting type.

PART 3 EXECUTION

3.01 ROUGH CARPENTRY INSTALLATION

A. Nailers, blocking, furring set to deck and slab, power driven studs, drive screws acceptable, except where bolting is indicated.

B. Nailing: In accordance with industry standards of good practice.

C. Install materials furnished under other sections of the specifications per detail drawings and approved shop drawings.

D. Builder's Hardware: The contractor shall furnish all rough hardware such as nails, screws, bolts, etc.

END OF SECTION 06 10 00 - ROUGH CARPENTRY

SECTION 07 01 50 - PREPARATION FOR REROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Full tear-off of entire roof system.
   2. Removal of roof edge metal, flashings, counter-flashings, and curbs. (Refer to removal drawings)
   3. Removal for reinstallation: HVAC, Plumbing, and Electrical items as indicated

1.03 DEFINITIONS

A. Full Roof Tear-off: Removal of existing roofing system down to existing concrete roof deck.

B. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.04 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site selected by owner’s representative.
   1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
   2. Review methods and procedures related to roofing tear-off, including, but not limited to, the following:
      a. Reroofing preparation, including roofing system manufacturer's written instructions.
      b. Temporary protection requirements for existing roofing system components that are to remain.
      c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
      d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
      e. Existing roof deck conditions requiring installers notification.
      f. Existing roof deck removal procedures and Owner notifications.
      g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
      h. Structural loading limitations of roof deck during reroofing.
      i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
      j. HVAC shutdown and demolition and sealing of air intakes.

k. Electrical demolition and shutdown.
l. Shutdown of fire-suppression, protection, and alarm and detection systems.
m. Asbestos removal and discovery of asbestos-containing materials.
n. Governing regulations and requirements for insurance and certificates if applicable.
o. Existing conditions that may require Architect/Engineer notification before proceeding.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Temporary Roofing Submittal: Product data and description of temporary roofing system.
1. If temporary roof remains in place, include surface preparation requirements needed to receive permanent roof, and submit a letter from roofing manufacturer stating acceptance of the temporary roof and that its inclusion does not adversely affect the new roofing system's resistance to fire and wind or specified special warranty or its FM Approvals rating.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.
1. Include certificate that Installer is approved by warrantor of specified roofing system.
2. Include certificate that Installer is licensed to perform asbestos abatement.

B. Field Test Reports:
1. Fastener pull-out test report.

C. Installer Qualifications: Licensed to perform asbestos abatement in the state or jurisdiction where Project is located.

D. Regulatory Requirements:
1. Comply with governing EPA notification regulations before beginning roofing removal.
2. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.07 FIELD CONDITIONS

A. Owner will occupy portions of building immediately below reroofing area.
1. Conduct reroofing so Owner's operations are not disrupted.
a. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or detection equipment if needed, and evacuate occupants from below work area.
b. Protect interior spaces prior to removals and demolition operations. Confirm ceiling systems are NOT attached to the existing roof deck and will NOT be affected by roofing/demolition.
2.
3. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area.
a. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.

B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings,

and landscaping from damage or soiling from reroofing operations.

C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

D. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed. Provide uniformly distributed loads and do not exceed loads as indicated on the Structural contract documents.

E. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
   1. Remove only as much roofing in one day as can be made watertight in the same day.

F. Hazardous Materials: A report on the presence of hazardous materials is included in these documents for review and use. Examine report to become aware of locations where hazardous materials are present.
   1. Hazardous material remediation is specified elsewhere in the Contract Documents.
   2. Do not disturb hazardous materials or items suspected of containing hazardous materials except according to procedures specified elsewhere in the Contract Documents.
   3. Coordinate reroofing preparation with hazardous material remediation to prevent water from entering existing roofing system or building.

PART 2 - PRODUCTS

2.01 TEMPORARY ROOFING MATERIALS

A. Torch applied vapor barrier system. (Refer to section 07 19 00)

B. Asphalt Primer: ASTM D41/D41M.

C. Roofing Asphalt: ASTM D312/D312M, Type III or IV.

2.02 INFILL AND REPLACEMENT MATERIALS

A. Wood blocking, curbs, and nailers are specified in Section “06 10 00 Rough Carpentry”.

B. Metal Deck Infill as per contract drawings.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protection of In-Place Conditions:
   1. Protect existing roofing system that is not to be reroofed in the same day.
   2. Limit traffic and material storage to areas of existing roofing that have been protected.
   3. Maintain temporary protection and leave in place until roof replacement.
   4. Comply with requirements of existing roof system manufacturer's warranty requirements.

B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing

materials.

C. Shut off rooftop utilities and service piping before beginning the Work.

D. Test existing roof drains to verify that they are not blocked or restricted.
   1. Immediately notify owners representative of any blockages or restrictions.

E. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
   1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

F. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

G. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.
   1. Prevent debris from entering or blocking roof drains and conductors.
      a. Use roof-drain plugs specifically designed for this purpose.
      b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
   2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.
      a. Do not permit water to enter into or under existing roofing system components that are to remain.

3.02 ROOF TEAR-OFF

A. Notify Owner each day of extent of roof tear-off proposed for that day.

B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.

C. Remove accessories from roofing.
   1. Store and protect accessories for reuse in manner not to exceed structural loading limitations of roof deck.

D. Full Roof Tear-off: Where indicated on Drawings, remove existing roofing and other roofing system components down to the existing roof deck.

3.03 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify the owners representative.
   1. Do not proceed with installation until directed by the owner’s representative.

3.04 BASE FLASHING REMOVAL

A. Remove existing base flashings.

1. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.

B. Do not damage metal counterflashings that are to remain.
   1. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish as existing.

C. Inspect parapet sheathing, wood blocking, curbs, and nailers for deterioration and damage.
   1. If parapet sheathing, wood blocking, curbs, or nailers have deteriorated, immediately notify owners representative.

3.05 FASTENER PULL-OUT TESTING

A. If required, perform fastener pull-out tests according to SPRI FX-1, and submit test report to Architect and roofing manufacturer before installing new roofing system.
   1. Obtain Architect's and roofing manufacturer's approval to proceed with specified fastening pattern.
      a. Architect or Roofing manufacturer may furnish revised fastening pattern commensurate with pull-out test results.

3.06 DISPOSAL

A. Collect demolished materials and place in containers.
   1. Promptly dispose of demolished materials.
   2. Do not allow demolished materials to accumulate on-site.
   3. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 07 01 50

SECTION 07 19 00 - VAPOR RETARDER

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance and all related items to furnish and install all work of this section as shown by the drawings and specifications.

1. Vapor Retarder and Catalyzed Acrylic Resin Flashing System (Fully Reinforced Liquid Resin Flashing) to be included in the Roof Manufacturer's NDL Full System Warranty.

B. Related work specified elsewhere:

1. Section 06 10 00 - Rough Carpentry.
2. Section 07 22 00 - Insulation.
3. Division 7 – Roof Membrane
4. Section 07 60 00 - Flashing and Sheet Metal.
5. Section 07 71 10 – Premanufactured Gravel Stops.
6. Section 07 72 00 - Roof Accessories.
7. Section 07 90 00 - Sealants.

C. Description of Systems: The vapor retarder system and fully reinforced liquid resin flashing, in its entirety, shall consist of a complete watertight surface closed to perimeter walls, roof edges and roof openings with all accessories. Examine details and shop drawings of other trades, cooperate with them to ensure proper junctures, laps and closures.

1. Concrete Deck or Remaining Existing Vapor Retarder on Concrete Deck:

   a. Torch down 1-ply vapor retarder.

2. Steel Deck:

   a. Install underlayment board directly to the deck.
   b. Torch down 1-ply vapor retarder directly over underlayment board.

3. Poured Gypsum Deck:
   a. Install nailed base sheet directly to gypsum deck.
   b. Torch down 1-ply vapor retarder directly over nailed base sheet.

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1.02 QUALITY ASSURANCE

A. Manufacturer shall have a history of successfully producing specified products for a minimum of ten (10) years, without change in formulation.

B. Installer Qualifications: Installer ('roofer') shall perform the work of this section; and shall be a firm with not less than ten (10) years of successful experience in installation of roofing systems similar to those required for this project and has been and currently is acceptable to, or licensed by, manufacturer of primary roofing materials.

1. Installer Certification: Obtain written certification from manufacturer of roofing system certifying that installer is approved by manufacturer for installation of specified roofing system
2. Installer's Field Supervisor: Installer must maintain full-time supervisor on job site during times that work is in progress. Supervisor must have minimum of five (5) ~~years experience~~years' experience in roofing work similar to nature and scope of specified roofing.
3. All field installers shall receive project specific training by the manufacturer onsite or at the installers shop.

C. Technical support (minimum 6 hours at one (1) week intervals) at the start of installation, during and upon completion of the installation, an inspection shall be made by a Technical Representative of the manufacturer to observe the application of the roofing system. A written site visit report shall be submitted to the (Roofing) Contractor and the Architect after each visit.

D. Bonded Uplift Adhesion Pull Testing: Prior to the installation of the work, perform bonded uplift testing of the existing vapor retarder adhesion to the existing concrete substrates in accordance with ANSI-SPRI 1A test standard and FM Global Datasheet 1-52 and report the findings to the Architect. Conduct a minimum of 3 tests in the roof wind zones in the presence of the owner/ architect. The minimum uplift resistance shall be based on a 1.25 factor of safety based on FM Global Datasheet 1-52.

1.03 CODE REQUIREMENTS

A. The proposed vapor retarder system shall meet the requirements of the manufacturer's approved Class A roofing assembly.

1.04 SUBMITTALS

A. Samples:

1. Vapor retarder system components.
2. Nails and Fasteners: Each variety in size specified, on card and labeled.

B. Manufacturer's Literature:

1. Three (3) copies of the manufacturer's complete manuals on the vapor retarder system. Indicate thereon the materials used and the methods of application recommended by the manufacturer in accordance with the requirements of the specification.
2. Material List: Submit statement of all materials to be used on the project. List shall be organized into separate headings as materials relate to separate assembly conditions.

C. Certificates:

1. Furnish to the Architect, prior to starting work:

a. Copy of the approved roofer's agreement with the manufacturer of materials to be used.
b. Copy of U.L. Material Assembly listing from approved guide, notifying any deviation or options selected.
c. Written statement from the manufacturer that the selected assembly is compatible in all respects to the material specified.
d. Certification from the manufacturer that materials meet the applicable ASTM and Federal Specifications as herein specified.

1.05 **JOB CONDITIONS**

A. Environmental Requirement: No application of materials during inclement weather including but not limited to temperature or humidity conditions exceeding manufacturer's recommendations.

B. Protection:

1. During the process of each day's work, lay only as much materials as can be completed and made watertight during the that same day's operation.

1.06 **PRODUCT DELIVERY, STORAGE AND HANDLING**

A. Delivery: Vapor barrier material shall be delivered to the site in the manufacturer's unbroken containers and shall bear the manufacturers printed labels

B. Protection of Materials: Vapor barrier materials, adequately protected from rain and other moisture during storage prior to use and during application. Store materials in trailers or on raised platforms and cover with waterproof tarpaulins. Tarpaulins are to be banded or weighted to prevent blow-off. Store all membrane rolled material laying down.

C. Equipment: All equipment shall have rubber wheels and padded noses.

1.07 **WARRANTY**

A. See Roof System, Specification 07 52 16.

PART 2 PRODUCTS

2.01 **DESCRIPTION OF SYSTEM**

A. Base Sheet Mechanically Fastened at Gypsum Deck Applications: A fiberglass reinforced, asphalt coated sheet having a minimum weight of 20 lb/sq. The sheet shall conform to ASTM D 4601, Type II requirements

B. Smooth surfaced, torch grade SBS asphalt elastomer sheet reinforced with a combination of polyester fabric/fiberglass scrim composite ASTM 6162 Type II, a fiberglass scrim ASTM D 6163 Type I, or a polyester fabric ASTM D 6164 Type I, 120 mils thick.
   a. Grade S.
   b. Type: 120 Torch grade.

C. Catalyzed Acrylic Resin Flashing System (Fully Reinforced Liquid Resin Flashing): A specialty flashing system consisting of a liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared or primed substrate. The flashing system shall consist of a catalyzed primer, basecoat and topcoat, combined with a non-woven polyester fleece. The use of the specialty flashing system shall be specifically approved in advance by the membrane manufacturer and architect for each application and shall be applied at all exposed, top ply edges at drain sumps, waste stacks, vent stacks, equipment curbs, roof perimeter flashings, roof penetrations, etc.

PART 3 EXECUTION

3.01 GENERAL

A. Those installation specifications that are prerequisites for the issuance of the finished roofing manufacturer's membrane system's warranty.

3.02 INSPECTION

A. All surfaces must be dry and thoroughly cleaned of all dust, dirt and debris. Decks of questionable dryness shall be checked prior to application of vapor barrier (test with TH moisture meter).

B. All projections through or openings in the deck shall be completed before application of vapor barrier.

C. Examine all deck surfaces for inadequate anchorage, foreign materials, cracks, unevenness, which would prevent the execution and quality or application of the vapor barrier system as specified.

D. Do not proceed with application until defects are corrected.

3.03 PREPARATION OF SURFACES

A. Concrete decks or remaining existing vapor retarder shall be accepted by manufacturer prior to installation of vapor retarder. If the existing vapor retarder is to remain, the contractor shall be responsible, at his expense, for conducting bonded uplift tests in the presence of the Architect to verify adhesion meets wind uplift requirements. Conduct Bonded Uplift Testing in accordance with the Quality Assurance Article and report the findings to the architect before proceeding

B. Prime underlayment board over steel decks prior to application of vapor retarder as recommended by membrane manufacturer. Primer will require 1-hour minimum to dry at a temperature of 75 degrees. Prime only those areas that will be covered with membrane the same day. Re-prime any areas that become wet or dirty

3.04 APPLICATION

A. General:

1. Phased application: Not permitted.
2. All flanges shall be set in a smooth, even, continuous coating of plastic flashing cement.
3. Priming: concrete and masonry surfaces and underlayment board with a uniform coating of the specified
   asphalt primer.

B. Vapor Retarder at Concrete Decks:

1. Install at temperatures above 40° F (air and substrate). Avoid moving or stacking heavy loads on the installed membrane, particularly in hot weather.
3. Membrane shall not be exposed for more than 30 days.
4. Apply Vapor Barrier from low to high points, in a shingle fashion, so that the laps

will shed water. Overlap all edges by at least 2 ½ inches. End laps should be staggered.

5. Position membrane carefully so as to avoid fish-mouths and wrinkles. Roll the membrane immediately after installation with a 100-150 pound roller wrapped in a resilient material.
6. When membrane will not be covered by the end of the workday, apply a medium to heavy coat of Primer over the fabric in the seam area. Install a 2" long bead of Lap Sealant along any T-joints or step-offs. Allow primer to flash off and then use a hand roller to mate the seam area together paying particular attention to any T-joints or step-offs.
7. Repairs: Following application, inspect all membrane for tears, punctures, fish-mouths, blisters, and voids due to misalignment at seams. Remove damaged membrane. Prime exposed substrate and allow primer to dry. Apply a new section of Vapor Barrier to primed substrate, extending at least 6 inches on to underlying membrane on all sides. Slit fish-mouths and overlap the edges. Prime the repair area allowing it to extend at least 6 inches in all directions.

C. Vapor retarder at Steel Deck:

1. Over underlayment board, same installation as concrete deck.

D. Vapor Retarder at Poured Gypsum Deck:

1. Poured gypsum decks shall be accepted by manufacturer prior to application of nailed base sheet.
2. Base Sheet Securement at Gypsum Substrate Applications: Lay the base sheet over entire area to be roofed, lapping sides 3 inches and ends 6 inches. Using the specified fasteners, fasten each sheet every 9 inches through laps and stagger fasten the remainder of the sheet in 2 rows on nominal 12 inch centers with fasteners in each row on 12 inch centers. Increase the fastening pattern at the roof perimeter and corners as recommended by the roof system manufacturer to resist the wind uplift pressures listed on the drawings.
3. Install at temperatures above 40° F (air and substrate). Avoid moving or stacking heavy loads on the installed membrane, particularly in hot weather.
4. Membrane shall not be exposed for more than 30 days.
5. Apply Vapor Barrier from low to high points, in a shingle fashion, so that the laps will shed water. Overlap all edges by at least 2 ½ inches. End laps should be staggered.
6. Position membrane carefully so as to avoid fish-mouths and wrinkles. Roll the membrane immediately after installation with a 100-150 pound roller wrapped in a resilient material.
7. When membrane will not be covered by the end of the workday, apply a medium to heavy coat of Primer over the fabric in the seam area. Install a 2" long bead of Lap Sealant along any T-joints or step-offs. Allow primer to flash off and then use a hand roller to mate the seam area together paying particular attention to any T-joints or step-offs.
8. Repairs: Following application, inspect all membrane for tears, punctures, fish-mouths, blisters, and voids due to misalignment at seams. Remove damaged membrane. Prime exposed substrate and allow primer to dry. Apply a new section of Vapor Barrier to primed substrate, extending at least 6 inches on to underlying adhered membrane on all sides. Firmly roll repaired area with a 2" hand roller to ensure a good seal. Slit fish-mouths and overlap the edges. Prime the repair area allowing it to extend at least 6 inches in all directions. Firmly roll repair section to ensure a good seal.

E. Catalyzed Acrylic Resin Flashing System: Install the liquid-applied primer and flashing system in accordance with the membrane system manufacturer's printed installer's guidelines and other applicable written recommendations as provided by the manufacturer. All exposed, top ply edges at drain sumps, waste stacks, vent stacks, equipment curbs, roof perimeter flashings, roof penetrations, etc., shall be sealed with target patch of resin flashing system."

END OF SECTION 07 19 00 - VAPOR & AIR RETARDERS

SECTION 07 22 00 – TAPERED / FLAT ROOF INSULATION SYSTEM

PART 1 GENERAL

1.01 **DESCRIPTION**

A. Scope:

The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance and all related items to furnish and install all work of this section as shown by the drawings and specifications.

1. Flat roof insulation, including base layer of tapered system.
2. Tapered roof insulation system.
3. Cover Board / Underlayment Board
4. Flexible insulation stuffing.
5. All insulation to be included in the Roof Manufacturer's NDL Full System Warranty.

B. Related Work Specified Elsewhere

1. Wood Nailers and Blocking: Section 06 10 00.
2. Vapor Retarder: Section 07 19 00
3. Roofing System: Division 7
4. Flashing and Trim: Sections 07 60 00 and 07 71 00.

1.02 **QUALITY ASSURANCE**

A. Compliances - The tapered roof insulation system shall meet the following standards:

1. ASTM C1289-06, Type II, Class 1, Grade 2 (20 psi).
2. International Building Code (IBC) Section 2603
3. Factory Mutual Class I approval.

1.03 **SUBMITTALS**

A. Submit manufacturer's specifications and installation instructions. Include data substantiating that the tapered insulation system complies with the requirements.

B. Submit manufacturer's shop drawings for approval. Shop drawings shall show complete layout of the tapered system and shall comply with the drainage pattern required. Only tapered insulation manufacturer's shop drawings will be acceptable.

1. Shop drawings shall include: Outline of roof, location of drains, oil, profile of tapered insulation components, indications of minimum and maximum insulation thicknesses, and the average "R" value for the completed insulation system.
2. The contractor shall verify all roof dimensions and drain locations and confirm same with the manufacturer.
3. Approved shop drawings shall be returned to the manufacturer before insulation is delivered to the job site.

C. Submit letters from the tapered insulation manufacturer's that the roofing system to be installed is approved by the tapered insulation manufacturer for use with the roofing system.

D. Samples:

1. Insulation: One 3 inch square piece.
2. Barrier (Cover) Board: One 3 inch square piece.

1.04 **PRODUCT DELIVERY, STORAGE AND HANDLING**

A. Deliver tapered insulation system with manufacturer's original packaging with labels intact and legible.

B. Insulation must be kept dry at all times.

C. If stored outside, raise insulation above ground or roof level on pallets and cover with tarpaulin or other waterproof material. Plastic wrapping installed at the factory should not be used as outside storage covers.

1.05 **JOB CONDITIONS (CAUTIONS, WARNINGS)**

A. Roof surface shall be free of ponded water, snow or ice.

B. Install no more insulation in one day than can be covered the same day with a completed roofing membrane.

C. Do not expose insulation to excessive heat, sparks or open flame.

PART 2 PRODUCTS

2.01 **GENERAL**

A. All tapered and flat insulation components shall be manufactured or approved by the membrane insulation manufacturer as compatible.

B. Manufacturer’s:

1. Atlas Roofing Corporation, 2000 RiverEdge Parkway, Suite 800, Atlanta, GA 30328. Ph. (770) 952-1442
2. Carlisle SynTec, 1285 Ritner Highway, Carlisle PA 17013
   Phone: 800-453-2554
3. Hunter Panels, 15 Franklin Street, Portland, Maine 0410, Ph. (888) 746-1114

2.02 **EXTRUDED POLYISOCYANURATE INSULATION**

A. The flat stock insulation system shall consist of polyisocyanurate foam panels, chemically bonded during the foaming process to facers on the top and bottom surfaces, and shall conform to the following:

PROPERTY	TEST METHOD	SPECIFICATION
*Thermal Performance	ASTM C 518	Min R=5.6 per 1" Thickness
Compressive Strength	ASTM D 1621	20 psi
Dimensional Stability	2% linear change (7days)	

Moisture Vapor Transmission	ASTM E 96 (12.10)	<1 perm
Water Absorption	ASTM C 209	<1% volume
Flame Spread	ASTM E 84	<50
Service Temperature		100NF. to +250

* Thermal values for the installed insulation system shall be "AGED" valued and determined in accordance with RIC/TIMA Technical Bulletin 281 1.

B. Insulation system facers:

1. Coated glass fiber mat facer.

C. All flat or filler insulation panels shall have facing materials identical to the insulation panels.

D. The insulation system shall have a minimum thickness of 6 1/2” and a minimum total "R" value AS NOTED ON DRAWINGS.

2.03 RELATED MATERIALS

A. Cant Strip and Tapered Edge Strip: Standard machine cut fiberboard strips in sizes to suit the details as indicated on the project drawings.

B. Drainage Crickets: Prefabricated crickets provided by the insulation manufacturer made of same material as tapered system. Slope shall be 1/4” per ft min. FIELD FABRICATED CRICKETS WILL NOT BE ACCEPTED.

C. Acceptable Adhesive:

1. FAST™ adhesives.
2. OlyBond 5500™ adhesives.
3. One Step
4. VersiGrip®
5. No other adhesives will be accepted unless approved by the vapor barrier manufacturer.

2.04 MECHANICAL FASTENERS

A. Mechanical fasteners shall be galvalume-coated steel, minimum 26 ga. fastening plates, attached with fasteners by insulation manufacturer in a size and pattern required to meet or exceed the requirements of the roof system manufacturer’s full system warranty based on the stated wind uplift up to a sustained wind speed of ninety (90) miles per hour as noted on drawings and in Specification for membrane system and the deck.

2.05 COVER BOARD/UNDERLAYMENT BOARD

A. Manufacturer’s:

1. Georgia-Pacific Gypsum LLC, ½” Fiberglass-Mat Faced Gypsum Roof Board: DensDeck Prime. Or thickness noted on drawings.
2. USG, ½” Securock Roof Board. Or thickness noted on drawings.
3. Nation Gypsum DEXcell FA Glass-Mat Roof Boards
4. Contractor shall verify submitted coverboard/underlayment board is compatible with chosen insulation and membrane for a full system roof warranty.

2.06 **FLEXIBLE INSULATION STUFFING**

A. Mineral Wool Insulation

Manufacturers:
1. Roxul Comfortbatt, Thermafiber Ultrabatt, or JM TempControl.

B. Unfaced Batt Insulation

1. Surface Burning Characteristics (ASTM E84 Test Procedures)

Flame Spread: 25
Smoke Developed: 50

PART 3 EXECUTION

3.01 **SUBSTRATE CONDITION**

A. Contractor shall be responsible for providing proper substrate to receive tapered insulation and roofing systems.

B. Contractor shall verify that work done under sections meets the following:

1. Roof drains and/or scuppers have been properly installed in the location shown on the approved shop drawings.
2. Roof curbs, nailers, equipment supports, vents and other items penetrating the roof are properly attached to substrate and are otherwise properly prepared.
3. Concrete surfaces are properly finished and free of fins, edges or voids.

3.02 **INSULATION APPLICATION**

A. Installing Uniform Thickness Insulation with Adhesive:

1. Install the insulation with the long joints running in a continuous straight line with end joints staggered. Butt edges and ends snugly so there are no gaps between the insulation boards.
2. Install the cricket insulation over the uniform thickness insulation. Cut and fit the cricket insulation in accordance with the manufacturer's instructions.
3. Prepare substrate according to the manufacturers recommendations. Set each piece of insulation board, including cricket insulation if any, in serpentine ribbons of adhesive applied at the manufacturer's recommended rate. Press insulation into the adhesive to a firm and uniform bearing. Maintain pressure on the insulation until the adhesive has completely set (20 to 45 minutes).

a. Discard boards with broken corners and boards which are warped.

B. Installing Tapered Insulation With Adhesive:

1. Install the insulation following the manufacturer's shop drawings and instructions for laying out the tapered insulation system. Butt edges and ends snugly so that there are no gaps between the insulation boards.
2. Install the cricket insulation over the uniform thickness insulation. Cut and fit the cricket insulation in accordance with the manufacturer's instructions.

3. Prepare substrate according to the manufacturers recommendations. Set each insulation board including cricket insulation if any, in serpentine ribbons of adhesive applied at the rate recommended by the manufacturer. Press insulation into the adhesive to a firm and uniform bearing. Maintain pressure on the adhesive until the adhesive has completely set (20 to 45 minutes).

   a. Discard boards with broken corners and boards which are warped.

3.03 **INSTALLING UNDERLAYMENT BOARD**

A. See Specification 07 19 00 – Vapor Retarder

3.04 **INSTALLING COVER BOARD**

A. Install cover board over the insulation.

B. Installing Cover Board with Adhesive:

1. Install the cover board over the insulation with the long joints running in a continuous straight line with end joints staggered. Butt edges and ends snugly so there are no gaps between the boards.
2. Set each board in serpentine ribbons of the adhesive applied at the manufacturer's recommended rate. Maintain pressure on the board until the adhesive has completely set.

3.05 **FLEXIBLE INSULATION STUFFING INSTALLATION**

A. Flexible insulation stuffing: Install where indicated and/or where required to fill voids.

END OF SECTION 07 22 00 – TAPERED / FLAT ROOF INSULATION SYSTEM

SECTION 07 52 16 - (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Scope of Work:

1. Membrane roofing systems (modified bitumen membrane and liquid applied membranes and flashings), in their entirety, shall consist of a complete watertight surface, closed to perimeter walls, gravel stops and roof openings, coverboards, insulation, adhesives all accessories indicated and required to achieve the above.

2. Sequence work to minimize construction traffic on permanent roof systems.

B. Summary of Roof System:

1. Roof assembly consists of a torch applied granule surfaced SBS Modified Bitumen cap ply membrane and liquid resin cap ply flashing system, over a torch applied SBS Modified Bitumen base ply membrane and flashing system, over an adhered coverboard, over adhered insulation, over a torched applied asphaltic vapor retarder, over primed at concrete roof deck and over thermal barrier at metal deck infill. The roof assembly shall be based on an FM Global approved roof assembly on concrete roof decks.

C. Related work specified elsewhere:
1. Section 01 35 23 for hot work permit
2. Section 06 10 00 “Rough Carpentry.”
3. Section 07 01 50 “Preparation for Re-Roofing.”
4. Section 07 19 00 “Vapor & Air Retarders”
5. Section 07 22 00 “Tapered & Flat Roof Insulation System”
6. Section 07 60 00 “Sheet Metal Flashing and Trim.”
7. Section 07 71 00 for coping included on this section’s warranty
8. Section 07 72 00 “Roof Accessories.”
9. Section 07 90 00 “Sealants.”

1.2 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to Work of this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Prior to the beginning of the roofing work, a pre-roofing conference is to be held, attended by the Consultant, the Contractor, the Roofing Contractor, a representative of the Roofing Manufacturer and the University. The purpose of this conference is to review the

specifications, details, application requirements, staging areas, crane set-up locations, storage areas, protection and safety precautions, and what work is to be completed before the roofing operation begins.

2. Meet with Owner, Architect, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
4. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
6. Review structural loading limitations of roof deck during and after roofing.
7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
8. Review governing regulations and requirements for insurance and certificates if applicable.
9. Review temporary protection requirements for roofing system during and after installation.
10. Review roof observation and repair procedures after roofing installation.

1.4 SUBMITTALS

A. Certificates: The following items shall be submitted and approved prior to the delivery of materials to the job site. Submit all items as individual submittals with individual cover sheets, except contract closeout submittals, at one time as a coordinated package. Partial packages will not be considered.

1. “Letter of Assembly” from the roofing manufacturer with a descriptive list of the materials and methodologies proposed for use at each roof area and type. Include the following information:
   a. Manufacturer’s written approval or license of the applicator for installation of the herein specified roofing system. Submit proof that applicator attended manufacturer training sessions.
   b. Evidence of manufacturer’s history of production for the system specified herein. A minimum of five years (5) experience is required. Provide documentation of job lists, project size, Architect of Record, installing applicator, telephone numbers and contact names.
   c. Copy of FM and UL material assembly listings and FM Roof Navfrom approved guide, note any deviation of options selected. Submit fully completed FM Global Form 2688.
   d. Written statement from the manufacturer that the selected assembly is compatible in all respects.
   e. Certification from the manufacture that materials meet the applicable ASTM and specifications as herein specified.

B. Product Data: For each type of product.

C. Shop Drawings: For roofing system. Include plans, insulation and taper layouts, sections, details, and attachments to other work for each condition. Show wind zones per Drawing S0.1 and describe roofing anchorage.

D. Samples for Verification: For the following products:

1. Samples of each ply component of the roofing and flashing membranes.
2. Samples of each liquid flashing component of the roofing and flashing membrane.
3. Cover board sample.

E. Sample Warranties: For manufacturer's special warranties.

F. Qualification Data: For Installer.

G. Field Test Reports:
1. Bonded Uplift Adhesion Pull Test Results.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Manufacturer shall have a history of successfully producing specified products for a minimum of ten (10) years, without change in formulation.

B. Installer Qualifications: Installer ('roofer') shall perform the work of this section; and shall be a firm with not less than five (5) years of successful experience in installation of roofing systems similar to those required for this project and has been and currently is acceptable to, or licensed by, manufacturer of primary roofing materials.

1. Installer Certification: Obtain written certification from manufacturer of roofing system certifying that installer is approved by manufacturer for installation of specified roofing system
2. Installer's Field Supervisor: Installer must maintain full-time supervisor on job site during times that work is in progress. Supervisor must have minimum of five (5) years' experience in roofing work similar to nature and scope of specified roofing.
3. All field installers shall receive project specific training by the manufacturer onsite or at the installers shop.

C. Technical support (minimum 6 hours at one (1) week intervals) at the start of installation, during and upon completion of the installation, an inspection shall be made by a Technical Representative of the manufacturer to observe the application of the roofing system. A written site visit report shall be submitted to the (Roofing) Contractor and the Architect after each visit.

1.7 JOB CONDITIONS

A. Environmental Requirements:

1. Roofing shall not be applied during precipitation and shall not be started in the event there is a probability of precipitation during application.
2. When application ambient air temperatures (70°F to 100°F) cannot be maintained, do not apply roofing membrane without using cool weather application procedures.
3. When water in any form (i.e. rain, dew, ice, frost, snow, etc.) is present on the deck, do not apply roofing materials.

4. At low outdoor temperatures (below 50°F), the specified cold adhesive becomes more viscous, making distribution more difficult. The optimal temperature of the adhesive at point of application is 70°F. To facilitate application of the adhesive when ambient temperatures are below 50°F, store the adhesive and roll goods in a warm place (heated trailer or other insulated, heated storage area) immediately prior to use. Roll or broom the plys to ensure contact with the underlying adhesive. Suspend application in situations where the adhesives cannot be kept at temperatures allowing for even distribution.
5. Cut warmed rolls into thirds and allow cut plys to lay flat with the back surface of the ply facing up for at least fifteen (15) minutes. “Fly” the pre-cut plys in by placing them into the cold adhesive rather than rolling them into position.

B. Protection:

1. Protection against staining and mechanical damage shall be provided for adjacent surfaces during application of roofing.
2. Torch Safety: Should torching of flashing membrane seams be used, designate one person on each crew to perform a daily fire watch. The designated crew member shall watch for fires or smoldering materials on all areas of roof construction. Continue to fire watch after roofing has suspended for the day.

C. Ensure roof deck is structurally sound to support construction traffic.

1.8 WARRANTY

A. Contractor’s Guarantee: Provide a 2-year Contractor’s Guarantee
1. The Contractor guarantees that the total roofing installation, together with all related composition flashings, resin flashings, metal flashings, base sheet fasteners, roof insulation, any vapor seal, blocking, adhesives and seals in connection with the same, will be watertight and free from defects as to materials, installation and/or workmanship for a period of 2-years from the date of acceptance of the completed project.

2. During the 2-year guarantee period, the contractor agrees that within 24 hours of receipt of notice from the campus, he will inspect and make immediate emergency repairs to defects or to leaks in the roof system, and within 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 campus, except in the event it is determined that such leaks were caused by abuse, lightning, hurricane, tornado, hail storm or other unusual climatic phenomena of the elements, or failure of adjacent or related work previously installed by others.

B. Manufacturer’s Warranty: In addition to the 2 year period specified above, furnish the membrane manufacturer’s printed 25 Year (continuous) NDL non-prorated Full System Warranty, covering workmanship, materials, and wind related damage, for the Work of this Section.
1. The warranty shall include, but not be limited to, repair of leakage and the repair and/or replacement of the roofing system as necessary to correct defects or damage caused by; materials, workmanship, or wind speeds less than or equal to 90 MPH (V3s).
   a. Materials shall include the membrane, base sheet fasteners, insulation, fasteners, adhesives and flashing originally provided or approved by the manufacturer, and all accessory products.

b. Repair and/or replacement of the roofing system shall include the replacement of wet insulation. For the purpose of this specification, polyisocyanurate and fiberglass faced gypsum coverboard insulation will be considered wet if either of the following exists:
   1) Free water is visible when the insulation is compressed.
   2) No free water is visible when the insulation is compressed, but the insulation is damp to the touch over a large enough area, as determined by the Owner's Representative, to jeopardize the integrity of the roof system and any of its components, or to significantly lower the specified R value of the insulation.

2. The manufacturer approved roof system shall withstand an extended peak gust wind speed coverage up to 90 MPH (V3s).

3. Warranty shall commence with the Fund and campus final acceptance of all the work covered under the Contract or at such other date or dates as the campus may specify in writing prior to that time.

4. Manufacturer Inspections Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum. Inspections to occur in Years 2,5,10, and 15 following completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and flashings shall withstand specified uplift pressures, thermally induced movement, overburden components and loads and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings shall remain watertight.

B. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897:
   1. Refer to sheet S0.1 drawings for wind pressures.

C. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.

   1. Fire/Windstorm Classification: Class 1A-90.
   2. Hail-Resistance Rating: SH.
   3. Basis of Design FM Global Assembly:
      a. 370596-49238-0 as modified for gravel surfacing and concrete roof decks.
      b. 22241-48824-0 as modified for gravel surfacing and steel roof decks.

D. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Siplast, Inc. (Basis of Design)
2. Soprema
3. Johns Manville

B. Source Limitations: Obtain components including roof insulation fasteners for roofing system from same manufacturer as membrane roofing for inclusion in the manufacturer's warranty.

C. Basis of Design Roof Membrane System: Siplast Inc, Multiple ply modified bitumen system.
1. CONCRETE DECK – Typical Roof System (top down):

a. Paradiene 30 TG (Torched),
b. Paradiene 20 TG (Torched),
c. Coverboard & Insulation Substrates (Adhered see drawings),
d. Vapor Retarder Paradiene 20 TG (Torched),
e. Paradiene 917 Primer.
f. Catalyzed PMMA Resin Perimeter Flashing Membrane.

2. METAL DECK – Typical Roof System (top down):

a. Paradiene 30 TG (Torched),
b. Paradiene 20 TG (Torched),
c. Coverboard & Insulation Substrates (Adhered see drawings),
d. Vapor Retarder Paradiene 20 TG (Torched),
e. Paradiene 917 Primer,
f. Underlayment board (Mechanically Attached).
g. Catalyzed PMMA Resin Perimeter Flashing Membrane.

2.3 DESCRIPTION OF SYSTEMS

A. Roofing Membrane Assembly: A roof membrane assembly consisting of two plies of a prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane, applied over a prepared substrate torched to the cover board substrate. The double membrane assembly shall pass 500 cycles of ASTM D 5849 Resistance to Cyclic Joint Displacement (fatigue) at 14°F (-10°C). Passing results shall show no signs of membrane cracking or interply delamination after 500 cycles. The double membrane assembly shall pass 200 cycles of ASTM D 5849 after heat conditioning performed in accordance with ASTM D 5147. The assembly shall possess waterproofing capability, such that a phased roof application, with only one modified bitumen base ply in place, can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire roof system. The roof membrane assembly shall also conform to the following physical and mechanical property requirements.

1. Modified Bitumen Base and Stripping Plies

a. Approximate Nominal Thickness: 134 mils
b. Low temperature flexibility @ -15ºF (-26ºC): PASS (ASTM D 5147)

c. Peak Load (avg) @ 73ºF (23ºC): 80 lbf/inch (14.1 kN/m) (ASTM D 5147)
d. Peak Load (avg) @ 0ºF (-18ºC): 150 lbf/inch (26.5 kN/m) (ASTM D 5147)
e. Ultimate Elongation @ 73ºF (23ºC): 50% (ASTM D 5147)
f. Dimensional Stability (max): 0.1% (ASTM D 5147)
g. Compound Stability (min): 250ºF (121ºC) (ASTM D 5147)
h. Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
i. Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria.
j. Surfacing: Silica parting agent.

2. Modified Bitumen Cap Ply

a. Approximate Nominal Thickness: 134 mils/ 154 mils at sloped surfaces.
b. Low temperature flexibility @ -15ºF (-26ºC): PASS (ASTM D 5147)
c. Peak Load (avg) @ 73ºF (23ºC): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
d. Peak Load (avg) @ 0ºF (-18ºC): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
e. Ultimate Elongation @ 73ºF (23ºC): 50% (ASTM D 5147)
f. Dimensional Stability (max): 0.1% (ASTM D 5147)
g. Compound Stability (min): 250ºF (121ºC) (ASTM D 5147)
h. Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
i. Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria.
j. Surfacing: Granulated

B. Flashing Membrane Assembly: A flashing membrane assembly consisting of a prefabricated, reinforced, Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane and catalyzed acrylic resin flashing system. The flashing membrane assembly shall be adhered in accordance with the requirements of the system manufacturer and conform to the following physical and mechanical property requirements.

1. Cant Backing Ply and Flashing Reinforcing Ply

a. Approximate Nominal Thickness: 110 mils (2.6 mm)
b. Low temperature flexibility @ -15ºF (-26ºC): PASS (ASTM D 5147)
c. Peak Load (avg) @ 73ºF (23ºC): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
d. Peak Load (avg) @ 0ºF (-18ºC): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
e. Ultimate Elongation @ 73ºF (23ºC): 50% (ASTM D 5147)
f. Dimensional Stability (max): 0.1% (ASTM D 5147)
g. Compound Stability (min - ply): 250ºF (121ºC) (ASTM D 5147)
h. Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
i. Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria

2. Modified Bitumen Flashing Ply

a. Approximate Nominal Thickness: 150 mils (3.8 mm)
b. Coating/Finish Thickness – back surface (min): 40 mils (1 mm) (ASTM D 5147)
c. Low temperature flexibility @ 0º F (-18º C): PASS (ASTM D 5147)
d. Peak Load (avg) @ 73ºF (23ºC): 85 lbf/inch (15 kN/m) (ASTM D 5147)
e. Peak Load (avg) @ 0ºF (-18ºC): 180 lbf/inch (31.7 kN/m) (ASTM D 5147)
f. Tear-Strength (avg): 120 lbf (0.54 kN) (ASTM D 5147)
g. Dimensional Stability (max): 0.2% (ASTM D 5147)
h. Compound Stability (min): 225ºF (107ºC) (ASTM D 5147)
i. Approvals: UL Approved, FM Approved (products shall bear seals of approval)

j. Reinforcement: fiberglass scrim mat or other meeting the performance and dimensional stability criteria
k. Surfacing: Smooth.

C. Catalyzed Acrylic Resin Flashing System (Fully Reinforced Liquid Resin Flashing): A specialty flashing system consisting of a liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared or primed substrate. The flashing system shall consist of a catalyzed primer, basecoat and topcoat, combined with a non-woven polyester fleece. The use of the specialty flashing system shall be specifically approved in advance by the membrane manufacturer and architect for each application and shall be applied at all exposed, top ply edges at drain sumps, waste stacks, vent stacks, equipment curbs, roof perimeter flashings, roof penetrations, etc.

D. Base Ply and Base Ply Fasteners: Base Ply for Securement to Nailable Deck Substrates: A factory primed fiberglass reinforced, asphalt coated ply with a polyolefin film backing, having a minimum weight of 20 lb/sq. The ply shall conform to ASTM D 4601, Type II requirements.

2.4 AUXILIARY ROOFING MATERIALS

A. Asphalt Primer: ASTM D 41.

B. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

C. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

D. Fasteners: Factory-coated steel fasteners and metal or plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with stainless steel anchors.

F. Other Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

2.5 COVER BOARDS/THERMAL BARRIERS

A. Seed specification 07 22 00 – Tapered/Flat Roof Insulation System

2.6 ROOF INSULATION

A. See specification 07 22 00 – Tapered/Flat Roof Insulation System

2.7 INSULATION ACCESSORIES

A. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
   1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.

B. Insulation Cant Strips: ASTM C728, perlite insulation board.

C. Tapered Edge Strips: ASTM C728, perlite insulation board.

2.8 VAPOR RETARDER

A. See specification 07 19 00 – Vapor & Air Retarders

2.9 BASE PLY AND BASE PLY FASTENERS (HEALTH SERVICES BLDG)

A. Base Ply for Securement to Nailable Deck Substrates: A factory primed fiberglass reinforced, asphalt coated ply with a polyolefin film backing, having a minimum weight of 20 lb/sq. The ply shall conform to ASTM D 4601, Type II requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Set elevations for finished roof elevations based on coordinated roof survey and layout elevations and approved submittals.

B. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
   1. Verify that wood cants, blocking, curbs, and nail (Mechanically attached) fasteners are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
   2. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Remove only as much existing roofing as can be made fully watertight by the end of the day. The Contractor assumes all responsibility for water infiltration and damage inside building caused by roofing operation.

3.2 PREPARATION

A. Remove existing metal edges and parapet caps as shown on drawings.

B. Inspect roof deck surface, all perimeters and all roof projections. Notify Architect of any unsatisfactory conditions prior to proceeding.

C. All surfaces shall be swept or vacuumed prior to commencement of roofing.

D. Existing and new Wood Blocking and Plywood surfaces shall be smooth, free of protruding nails, depressions or raised edges.

E. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions.

1. Remove sharp projections.

F. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

1. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, FM Approvals' RoofNav listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast.

1. Remove and discard temporary seals before beginning work on adjoining roofing.

3.4 VAPOR RETARDER INSTALLATION

A. See specification 07 19 00 – Vapor & Air Retarders

3.5 INSULATION APPLICATIONS

A. Ensure vapor retarder is clean and dry.

B. Fully Adhere the bottom layer of insulation board to the existing vapor retarder and new vapor retarder where indicated on the drawings. Use manufacturer approved adhesive ribbons spacing and patterns to attach the insulation board, minimum of 12 inch spacing unless additional are required by the manufacturer to meet wind uplift requirements shown for wind zones on Drawing S001.

C. Embed each layer of flat or tapered roof board insulation into strips of cold applied insulation adhesive, in accordance with insulation and/or adhesive manufacturer’s instructions.

D. Minimum Total Insulation Thickness: As shown and noted on drawings.

E. Lay insulation boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof. Stagger all roof insulation joints between each layer of insulation.

F. Apply no more insulation than can be sealed with membrane in the same day.

G. Discard all insulation with broken edges or similar defects.

3.6 TAPER & CRICKETS

A. Install taper insulation and pre-manufactured crickets as shown on drawings to provide positive water flow.

3.7 SBS MODIFIED BITUMINOUS MEMBRANE INSTALLATION

A. General: Application shall be in accordance with roofing system manufacturer's instructions and the following requirements. Application of roofing shall immediately follow application of insulation as a continuous operation.

B. General: Contractor shall detail all laps and seams with heat welding device or torch.

C. Phased application: Not permitted. All plies shall be completed each day unless otherwise recommended by the roofing manufacturer.

D. Traffic and equipment: Kept off completed ply until cold applied adhesive has cured in accordance with membrane manufacturer's instructions.

E. All flanges shall be set in a smooth, even, continuous coating of plastic flashing cement.

F. Priming: Prime metal and concrete and masonry surfaces with a uniform coating of the specified asphalt primer.

G. Bitumen Consistency: Cutting or alterations of bitumen, primer, and sealants will not be permitted.

H. Roofing Application: Apply all layers of roofing free of wrinkles, creases or fishmouths. Exert sufficient pressure on the roll during application to ensure prevention of air pockets.

1. Apply all layers of roofing perpendicular to the slope of the deck.
2. Fully bond the base ply to the prepared substrate, utilizing minimum 3 inch side and end laps. Apply each ply directly behind the torch applicator. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps immediately following ply application. Stagger end laps a minimum of 3 feet.
3. Fully bond the finish ply to the base ply, utilizing minimum 3 inch side and end laps. Apply each ply directly behind the torch applicator. Stagger end laps of the finish ply a minimum 3 feet. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps immediately following ply application. Stagger side laps of the finish ply a minimum 12 inches from side laps in the underlying base ply. Stagger end laps of the finish ply a minimum 3 feet from end laps in the underlying base ply.
4. All layers of roofing shall be laid free of wrinkles, creases or fishmouths and shall be laid at right angles (perpendicular) to the slope of the deck. Plys shall be laid directly behind the cold adhesive applicator. Sufficient pressure shall be exerted on the roll during application to ensure prevention of air pockets.

5. When ambient air temperature below 50°F, install roofing plies in accordance with cool weather procedures.
6. On roof deck slopes over 1/2" in 12", install roofing membrane plies saddle fashion and back nail end of ply. At top to wood blocking with nine, 1" diameter cap nails in double row stagger the rows of nails.

3.8 FLASHING AND STRIPPING INSTALLATION

A. Install base flashing over sloped and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
   1. Prime substrates with asphalt primer if required by roofing system manufacturer.
   2. Backer-Ply Application: Adhere backer ply to substrate in cold-applied adhesive.
   3. Flashing-Ply Application: Torch apply flashing ply to substrate.

B. Extend base flashing up walls or parapets a minimum of 8 inches above roofing membrane and 4 inches onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
   1. Seal top termination of base flashing.

D. Install roofing cap-ply stripping where metal flanges and edgings are set on roofing according to roofing system manufacturer's written instructions.

E. Catalyzed Acrylic Resin Flashing System: Install the liquid-applied primer and flashing system in accordance with the membrane system manufacturer’s printed installer’s guidelines and other applicable written recommendations as provided by the manufacturer. All exposed, top ply edges at drain sumps, waste stacks, vent stacks, equipment curbs, roof perimeter flashings, roof penetrations, etc., shall be sealed with target patch of resin flashing system.”

F. Roof Drains: Apply reinforced liquid resin flashing target over the roof plies and into the roof drain bowl.
   1. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.
   2. Install fully reinforced liquid resin flashing according to manufacturer's written instructions.

3.9 ROOF SYSTEM INSTALLATION INTERFACE WITH RELATED COMPONENTS

A. Edge Metal: Completely prime metal flanges and allow to dry prior to installation. Turn the base ply down 2 inches past the roof edge and over the nailer, unless noted otherwise on the drawings. After the base ply and continuous cleat (if applicable) have been installed, set the flange in mastic and stagger nail every 3 inches on center. Strip-in the flange using the liquid flashing material, extending a minimum of 4 inches beyond the edge of the flange. Terminate the finish liquid flashing ply at the gravel-stop rise of the edge metal and embed gravel surfacing.

B. Sealant: Apply a smooth continuous bead of the specified sealant at the exposed finish ply edge transition to metal flashings incorporated into the roof system.

3.10 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed by roofing manufacturer.

B. Correct identified defects or irregularities.

C. Site attendance of roofing materials manufacturer representative during installation of the work shall be required as per manufacturer's requirements for warranty validation, but no less than once at the beginning of membrane installation and once each week during roof installation.

D. Notification of Completion: Notify the manufacturer by means of manufacturer's printed Notification of Completion form of job completion in order to schedule a final inspection date.

E. Infrared Roof Scan: As project nears completion, the roofing manufacturer shall provide an infrared scan of all roof areas featuring the specified membrane systems (completed after sunset), consistent with the methodologies of ASTM C1153. The intent is to confirm that no thermal anomalies are detected which are suggestive of the presence of wet insulation in the new assembly. A report of findings shall be submitted to the Architect and Owner.

3.11 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

C. Repair or replace defaced or disfigured finishes caused by work of this section.

3.12 PROTECTION

A. Protect adjacent building surfaces against damage from roofing work.

B. Where traffic must continue over finished roof membrane, protect surfaces with minimum ½" plywood.

3.13 Acceptance prior to substantial completion of all the work, inspect the roof and final form of warranty with the manufacturer's technical representative, campus, consultant, and Fund. Provide any corrective work requested by the consultant and submit the final warranty within 10 business days after substantial completion of all the work.

END OF SECTION 07 52 16

SECTION 07 53 10 - ADHERED EPDM ROOFING SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. EPDM Fully Adhered Roofing System.

2. Work includes but is not limited to:
   a. Roof insulation.
   b. Roofing, flashings, etc.

B. Related Work Specified Elsewhere:

1. Section 06 10 00 - Rough Carpentry.
2. Section 07 22 00 - Insulation.
3. Section 07 60 00 - Flashing and Sheet Metal.
4. Section 07 71 10 – Premanufactured Gravel Stops.
5. Section 07 72 00 - Roof Accessories.
6. Section 07 92 00 - Sealants.

C. Description of Systems: The membrane roofing system, in its entirety, shall consist of a complete watertight surface closed to perimeter walls, copings, and roof openings with all accessories. Examine details and shop drawings of other trades, cooperate with them to ensure proper junctures, laps and closures.

1.02 QUALITY ASSURANCE

A. Manufacturer shall have a history of successfully producing specified products for a minimum of ten (10) years, without change in formulation.

B. Installer Qualifications: Installer ('roofer') shall perform the work of this section and shall be a firm with not less than ten (10) years of successful experience in installation of roofing systems similar to those required for this project. The installer shall be currently certified by the manufacturer of the primary roofing materials to install their products and shall have been so for at least the past year.

1. Installer Certification: Obtain written certification from manufacturer of roofing system certifying that installer is approved by manufacturer for installation of specified roofing system
2. Installer's Field Supervisor: Installer must maintain full-time supervisor on job site during times that work is in progress. Supervisor must have minimum of five (5) year's experience in roofing work similar to nature and scope of specified roofing.
3. All field installers shall receive training by the manufacturer.

C. Pre-Installation Conference: Pre-Roofing Conference: Before the vapor retarder work is scheduled to commence, after shop drawings have been reviewed, and before any materials are ordered, a conference will be called at the job site for the purpose of reviewing specifications, details, application requirements, staging areas, crane set-up locations, storage areas, protection and safety precautions, and what work is to be completed before the roofing operation begins. The intent is to resolve questions before the work is started. The conference will be attended by the Roofing Contractor and his/her foreman, the

Owner's representative, a representative of the Roofing Manufacturer and the Architect.

D. Technical support (minimum at two (2) week intervals) during and upon completion of the installation an inspection shall be made by a Technical Representative of the manufacturer to observe the application of the roofing system. A written site visit report shall be submitted to the Roofing Contractor, the Architect, and the Owner the same day each inspection is performed. This submittal is a requirement for payment to the contractor.

E. Contractor's Responsibility:

1. Before application of roofing materials is commenced, the roofing contractor and the manufacturer's representative shall examine the roof deck and all conditions affecting his work and shall report in writing to the Architect any condition of deck or construction which could possibly adversely affect his work.
2. He shall not apply his roofing material until he is satisfied that such adverse conditions are removed and the materials being furnished and the application thereof will result in a finished product which will be unaffected by construction erection.

1.03 CODE REQUIREMENTS

A. The roof membrane system shall have an ASTM I-90 Wind uplift rating

1.04 SUBMITTALS

A. Certificates: The following items shall be submitted and approved prior to delivery of materials to the job site.

1. Furnish to the Architect, prior to starting work:

a. Submit a “letter of assembly” from the roofing manufacturer with a descriptive list of the materials and methodologies proposed for use.
b. Submit manufacturer’s written approval or license of Applicator for installation of the herein specified roofing system. Submit attendance sheet from manufacturer’s training session, documenting attendance by roofers that will be installing the membrane.
c. Submit evidence of manufacturer’s history of production for the system specified herein. A minimum of five (5) years’ experience is required. Documentation shall include job lists with project size, Architect of record, installing applicator, telephone numbers and contact names.
d. Copy of the approved roofer agreement with the manufacturer of materials to be used.
e. Copy of FM and U.L. Material assembly listing from approved guide, note any deviation of options selected.
f. Written statement from the manufacturer that the selected assembly is compatible in all respects.
g. Certification from the manufacturer that their materials meet the applicable ASTM and Federal Specifications as herein specified.
h. Submit, in duplicate, certification from the primary manufacturer, properly attested by a corporate officer, stating that all materials being supplied comply with the specifications and requirements of the contract documents, including conformance to all federal, state and local building codes.

2. Submit manufacturers sample Twenty (20) Year No Dollar Limit (NDL) Labor and

Material System Warranty and Manufacturer's Intent to Warranty Certification for this project as specified. See Section 1.06 below.

B. After each visit, furnish manufacturer's technical representative's written site visit report.

C. Furnish at project completion, roofer's two (2) year guarantee on contractor's letterhead and the manufacturer's detailed specification. The guarantee shall cover the roofing system and the flashings.

D. Samples and Manufacturer's Literature:

1. Two 8 x 11 inch samples of each sheet component of the roofing and flashing membranes.
2. Latest edition of the manufacturer's literature applicable to products and specifications to be used, as specified herein, including applicable flashing details.
3. Test results demonstrating compliance with all system and component performance requirements of this specification.

E. Contract Closeout Submittals:

1. Guarantee:
2. Roof System Manufacturer's maintenance recommendations.

F. Material Safety Data Sheets (MSDS): Do not include the MSDS in the Submittals Package. Submit the MSDS to the Owner's Representative at the Pre-Installation Conference.

G. Submit all items, except contract closeout submittals and MSDS, at one time as a complete package. Partial submittals will not be considered.

H. Submit, in duplicate, certification from the primary manufacturer, properly attested by a corporate officer, stating that all materials being supplied comply with the specifications and requirements of the contract documents, including conformance to all federal, state and local building codes including United States Code Section 41:10, Sub-Sections a-d, popularly known as the ABuy American Act@.

1.05 **JOB CONDITIONS**

A. Environmental Requirement: No application of materials during inclement weather including but not limited to temperature or humidity conditions exceeding manufacturer's recommendations.

B. Protection:

1. During the process of each day's work, lay only as much materials as can be covered and made watertight during that same day's operation.
2. Temporary waterstops shall be installed at the end of each day's work and shall be removed before proceeding with the next day's work. Waterstops shall be installed over stepped insulation boards, shall be compatible with all materials and shall not emit dangerous or incompatible fumes.
3. Protect new and existing membrane to remain from traffic by placing plywood where traffic will damage membrane.
4. Protect interior of building at all times and, if necessary, cover all penetrations and flash.
5. Drape tarpaulins over exterior walls of building where work access will deface

building. Clean any drippings from building exterior at completion of project.

6. Protect interior of the building by installing tarpaulins or polyethylene sheeting.

C. Structural Consideration:

1. Do not overload structure.
2. Palletized platforms shall have flat bottoms to uniformly distribute loads.

1.06 CONTRACTOR'S GUARANTEE

A. 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, hailstorm, 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 warranty so as not to void manufacturer's warranty.

1.07 MANUFACTURER'S WARRANTY

A. Provide manufacturer's 20 year Total System Warranty covering both labor and material with no dollar limitation. Provide a 20 year non-prorated membrane material warranty on the .060 field membrane. The maximum wind speed coverage shall be peak gusts of 90 mph measured at 10 meters above ground level. Certification is required with submittals indicating the manufacturer has reviewed and agreed to such wind coverage. All products including substrate boards, vapor retarders, insulation, fasteners, fastening plates and edgings must be manufactured and/or supplied by the roofing system manufacturer and covered by the warranty.

B. Pro-rated Warranties shall not be accepted.

C. Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the specifier's approval.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery: Roofing material shall be delivered to the site in the manufacturer's unbroken containers and shall bear the manufacturers printed labels. Labels for bitumen shall identify the material as roofing asphalt and shall indicate if the materials are for use on low or steep sloping roof deck, accompanied by manufacturer's certification stating manufacturer, type, melting point and compliance with ASTM specifications.

B. Protection of Materials: Roofing materials and insulation, adequately protected from rain and other moisture during storage prior to use and during application. Store materials in trailers or on raised platforms and cover with waterproof tarpaulins. Tarpaulins are to be banded or weighted to prevent blow-off. Store all membrane rolled goods laying down. Store adhesives at temperatures above 40 deg F.

C. Equipment: All equipment will have rubber wheels and padded noses.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Approved Manufacturers (Alphabetically):

1. Carlisle SynTec, 1285 Ritner Highway, Carlisle PA 17013
   Phone: 800-453-2554

2. Versico Incorporated, 3485 Fortuna Drive, P.O. Box 6424, Akron, OH 44312, (800) 992-7663.

3. Elevate (by Holcim Group), 26 Century Blvd, Nashville, TN 37214

2.02 EPDM SHEET MEMBRANE, SHEET FLASHING, AND RELATED PRODUCTS

A. The EPDM sheet membrane shall be visually free of streaks, particles of foreign matter, undispersed raw material, pinholes, cracks, tears, and shall be uniform in thickness. When unrolled in a relaxed position, the membrane shall be free of wrinkles, distortions, and blisters.

B. Roofing membrane shall be an unreinforced, Fleeceback, Ethylene, Propylene, Diene, Monomer (EPDM)

1. EPDM Sheet Membrane:

   a. UL Class A external fire rated, minimum thickness 60 mil, fire retardant, unreinforced, EPDM membrane.
   b. Meets the requirements of ASTM D 4637 Type I.
   c. Approvals: UL Class listed, FM Approved (products shall bear seals of approval).
   e. Color: Black

C. All accessory materials shall be supplied by, or approved by, the roofing manufacturer issuing the total system warranty.

2.03 FLASHING MEMBRANE

A. Flashing membranes shall meet the same requirements as stated in Section 2.02 of this specification.

B. Inseam Tape: Membrane manufacturer’s minimum 6-inch-wide self-adhering tape consisting of cured butyl double sided adhesive tape, for inseam splicing of rubber to rubber.

C. Cured EPDM Cover Tape: Membrane manufacturer's minimum 6-inch-wide self-adhering tape consisting of cured butyl adhesive laminated to cured EPDM, for installation over EPDM seams, cuts in field membrane, and for stripping in metal work.

D. Uncured EPDM Cover Tape: Membrane manufacturer's minimum 6-inch-wide self-adhering tape, consisting of cured butyl adhesive laminated to uncured EPDM, for installation over base flashing corners, inside and outside corners, pipe flashings and other detail work.

2.04 **MEMBRANE ADHESIVE**

A. The adhesive for bonding the roofing membrane to the substrate shall be as follows:

1. The membrane and flashing adhesive shall be Low VOC solvent-based, and as supplied by the membrane manufacturer. Application rate shall be as required by the membrane manufacturer for the substrate to be covered but shall not be less than **two full coats on both membrane and substrate, allowed to flash off**.

B. Additional Adhesives & Sealers: Splicing cement, lap sealant, water cut-off mastic, night seal, pourable sealer, splice joint cleaning agent and primer, and all other products related to the sheet membrane system.

2.05 **ACCESSORY PRODUCTS**

The following products are supplied by the membrane manufacturer and may be incorporated in this specification as needed or detailed on the drawings:

A. Termination Bar: 1 inch wide, .098 inch thick extruded aluminum bar pre-punched 6 inches on center with sealant ledge to support Lap Sealant.

B. Term Bar Nail-In: A 1 1/4 inch long expansion anchor with threaded drive pin used for fastening Sure-Seal Termination Bar or Seam Fastening Plates to concrete, brick or block walls.

C. Walkway Pads: See drawings for walkway pattern.

D. TPO Target patches: at kitchen exhaust units, at locations shown on roof plan and detailed.

2.06 **MISCELLANEOUS FASTENERS AND ANCHORS**

A. In general, all fasteners, anchors, nails, concrete screws, straps, etcetera, shall be stainless steel. Unless otherwise indicated on the drawings, all fasteners and anchors shall have a minimum embedment of 1-1/2 inches and shall be approved for such use by the fastener manufacturer.

PART 3 EXECUTION

3.01 **GENERAL**

A. Comply with installation specifications that are prerequisites for the issuance of the manufacturer's membrane systems warranty. The architect's details govern unless a given condition is not detailed or the manufacturer's details are more stringent.

B. Where the extent of patching of portions of the Project is significant and the need for this significant patching is due to the Contractor's means and methods, skill and labor, equipment operations, sequence of trades, lack of temporary protective facilities and/or

other actions during the performance of the work, then the significant patching shall be replaced with new work.

a. The Consultant will determine if patching must be replaced with new work using the following process.

Step 1: The Consultant will evaluate the risks associated with the Patching (such as water or water vapor infiltration into the work), the esthetic impact of visible Patching, the impact that Patching has on future maintenance, custodial or other campus operations and/or other objective criteria that it may deem reasonable during the evaluation of the Patching. Based on this evaluation, the Consultant may recommend moving on to Step 2.

Step 2: The Consultant will count and measure the amount of Patching using the most reasonable unit of measurement applicable. The sum of these counts and measurements will be the total amount of Patching.

1. The Consultant will determine the overall limits (Limits) of the portion of the Project with the Patching. The Limits will include all the Patching counted and measured above plus reasonably adjacent portions of the Project that may be without Patching.
2. The Consultant will measure the Limits using same unit of measurement used to measure the Patching. This quantity will define the extent of the Limits of the portion of the Project with the Patching.
3. Using the figures calculated above, the Consultant determines the number of Patches and the percentage of Patching that exists within the Limits. The work within Limits shall be replaced with new work if:
   - If the number count of Patches within the Limits exceeds 2 (two) per 100 (one hundred) square feet (or other appropriate unit of measurement), or
   - If the percentage of Patching exceeds 15% (fifteen percent) within Limits.

4. The Consultant will determine the reasonable extent and type of work required to replace the Patching and issued detailed drawings and instructions to the Contractor for its use in completing the corrective work.

3.02 INSPECTION

A. All surfaces must be dry and thoroughly cleaned of all dust, dirt and debris. Decks of questionable dryness shall be checked prior to application of roofing (test with TH moisture meter). All projections through or openings in the deck shall be completed before application of roofing.

B. Examine surfaces for inadequate anchorage, foreign materials, cracks, unevenness, which would prevent the execution and quality on application of the roofing system as specified.

C. Do not proceed with application until defects are corrected.

3.03 APPLICATION

A. Application of Membrane: As per manufacturer's recommendations and requirements for the 20 Year No Dollar Limit Labor and Material Warranty.

B. Unroll and position membrane without stretching. Allow the membrane to relax for approximately 1/2 hour before bonding. Fold the sheet back onto itself so half the underside of the membrane is exposed.

C. Apply the Bonding Adhesive in accordance with the manufacturer's published instructions, to both the underside of the membrane and the substrate. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.

1. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded half of the membrane sheet with a soft bristle push broom to achieve maximum contact.

4. Fold back the unbonded half of the membrane sheet and repeat the bonding procedure.

D. Install adjoining membrane sheets in the same manner, overlapping edges approximately 7 inches. Do not apply bonding adhesive to the splice area.

E. Strict care must be taken to make sure that bonding adhesive and bonding adhesive can stains are prevented on the finished roof membrane. Any short or long term storage of metal containers that can rust will require a separator sheet on the finished roof membrane.

END OF SECTION 07 53 10 - ADHERED EPDM ROOFING SYSTEM

SECTION 07 60 00 - FLASHING & SHEET METAL

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work:

The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance and All related items to furnish and install all work of this section as shown by the drawings and specifications.

1. Counter Flashings
2. Expansion Joint Assemblies.
3. Scuppers, conductor heads, downspouts.
4. Miscellaneous Metal Flashings.

B. Related work specified elsewhere

1. Section 06 10 00 - Rough Carpentry.
2. Section 07 - Roofing System.
3. Section 07 71 00 – Pre-Manuf. Gravel and Coping
4. Section 07 90 00 - Sealants.

1.02 QUALITY ASSURANCE

A. Reference Standards: The standards of quality for the design and fabrication of sheet metal shall be as described in the following:

1. Aluminum Association's Publication "Aluminum Construction Manual".
2. Architectural Sheet Metal Manual (SMACNA).
3. Copper Development Association's "Contemporary Copper handbook".
4. Stainless Steel Data Manual, Published by Committee of Stainless Steel Producers, American Iron and Steel Institute.

1.03 SUBMITTALS

A. All shop drawings: Submit full size fabrication drawings showing method of anchoring, types and sizes and spacing of fasteners, finish and shop coats of protective sealers, locations and details of joint required for thermal movement.

B. Samples:

1. Submit sample for approval of each profile, with gauge and finish proposed.
2. Typical corner unit.

C. Guarantee: Submit manufacturer's 20 year color guarantee.

1.04 PRODUCT HANDLING

A. Sheet metal and fabricated work, handled carefully to prevent damage to surfaces, edges and ends.

1. Store above ground in dry location and protect from damage.
2. Damaged items will be rejected, removed from project and replaced at no cost to

the Owner.

1.05 **JOB CONDITIONS**

A. Coordinate sheet metal work with other work to ensure delivery of built-in items and materials in sufficient time to avoid delays.

1. Provide sufficient information to others of locations of blocking, nailers and backing required for sheet metal work. Provide templates where necessary.

1.06 **GUARANTEE**

A. Prefinished color coated metals shall be manufacturer-guaranteed in writing for a 20 year life.

PART 2 PRODUCTS

2.01 ALUMINUM SHEET METAL: Aluminum of rolled stock, thickness as specified of 3003-H14 alloy and temper capable of being formed

A. Assemblies as detailed:

1. Mill finish aluminum, .050" thick formed as detailed in 10' maximum lengths.
2. Prefinished color coated aluminum, .050" thick formed as detailed in 10' maximum lengths.
3. Splice Plates: Mill finished or prefinished color coated 0.50" thick aluminum formed same as coping 6" wide.
4. Hold Downs: Aluminum strip, .064" thickness, unless otherwise specified, in 12' lengths for continuous application.
5. Shop fabricate corners and junctures with full flanges, minimum 18" x 18", miter and weld all sections prior to pre-finishing.
6. Screws: All screws to be stainless steel flathead wood screws, with soft EPDM washers.
7. Nails: for fastening aluminum sheet work shall be made of aluminum alloys 6061 or 5056 conforming to Federal Specification FF-N-105, Type 2, Style 20. All other nails used for fastening sheet metal work shall be with rust resisting qualities equal to the material being fastened and of size required for the proper installation of the work.
8. Pre-finished Color Coated Metals: Coping and splice plates shall be factory prefinished after fabrication, with full-strength 70% PVDF Coating, consisting of baked on prime coat and finish coat of minimum one mil thickness in matte finish.

2.02 STAINLESS STEEL SHEET METAL: ASTM A 167, Type 304, fully annealed, with finish to MATCH PRE-FABRICATED THROUGH-WALL FLASHING as specified in Specification Section 04 51 00

1. Expansion Joint: 26 gauge Stainless Steel with preformed Corners and End Dams

a. Fabricate in accordance with the Architectural Sheet Metal Manual recommendations for expansion and contraction of sheet metal work in continuous runs in profiles as shown.

2. Reglet: 26 gauge Stainless Steel

Two Piece Receiver and Counterflashing: Keyed, 26 gauge Stainless Steel with preformed Corners and End Dams supplied by Krando Metal Products, Inc., 505

Parkway, Broomall, PA 19008, Phone: 610-543-4311, Riverside Sheet Metal, Springfield, MA, or Hohmann & Barnard.

a. Fabricate in accordance with the Architectural Sheet Metal Manual in profiles as shown.

3. Rain Collar: 24 gauge Stainless Steel
4. Threshold Flashing with End Dams: 24 gauge Stainless Steel
5. Fully welded sill flashing with back dams and end dams: 24 gauge Stainless Steel
6. Fasteners: Stainless Steel

2.0 ACCESSORIES

A. Fasteners: Metal to match the metal being fastened (copper or stainless steel only for copper) use soft neoprene washers at exposed fasteners, where required. Finish of exposed fasteners shall be the same color as metal.
   1. Pop rivets may not be used.

B. Metal Primer: asphaltic type where it is required for embedment in roofing cements or isolation of dissimilar metals.

C. Plastic Cement: FS SS-C-153, Type I asphaltic –based cement. Must not contain asbestos.

PART 3 EXECUTION

3.01 **INSPECTION**

A. Inspect all surfaces to receive sheet metal. Starting of sheet metal work constitutes acceptance of backing.

   1. Backing, blocking, nailers installed straight, true to line, plumb, level. Surfaces sound, smooth, even, clean, dry, free from defects that would adversely affect sheet metal installation.
   2. Before fabrication, take field measurements to verify slopes and dimensions of surfaces to be covered.

3.02 **FABRICATION**

A. Brake form all shapes. Form drip edge at 45 deg. minimum and double back drip.

B. Shop prefabricate corners, all full flanges, miter and braze and solder, minimum length 18" x 18".

C. Apply sealant each side of splice, double bead on each side.

D. Scuppers: As detailed

E. Counterflashings: Form metal per detail. Cap flashing to be 4" height minimum.

3.03 **PROTECTIVE COATING**

A. Sheet metal members abutting or membering on or into adjacent dissimilar material, isolate

as required to minimize possibility of galvanic action.

3.04 **INSTALLATION**

A. General:

1. Install sheet metal with edges, arises and angles sharp and true to line, plane surfaces free from wave, warp and buckle.
2. Finish work free from water leakage under all weather conditions.
3. Provide all accessories required to complete the installation, of same metal as item to which applied, of gauge or thickness conforming to industry standards unless indicated otherwise.
4. Fastening concealed unless detailed otherwise.
5. Nails flat head, of length to penetrate backing minimum, spaced maximum 6" on center except where detailed otherwise.

END OF SECTION 07 60 00 - FLASHING & SHEET METAL

SECTION 07 71 10 - PRE-MANUFACTURED GRAVEL STOP SYSTEMS

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work:

The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance and all related items to furnish and install all work of this section as shown by the drawings and specifications.

1. Gravel Stop/Fascia Systems.
2. Expansion Joints Assemblies.
3. Drip Edge Assemblies.

Note: To be included in the Roof Manufacturer's NDL Full System Warranty.

B. Related work specified elsewhere

1. Section 06 10 00 - Rough Carpentry.
2. Section 07 – Roof Membrane Systems.
3. Section 07 90 00 - Sealants.
4. Section 07 60 00 - Flashing and Sheet Metal

1.02 QUALITY ASSURANCE

A. High performance gravel stop shall be CERTIFIED by the gravel stop manufacturer to meet performance design criteria according to the following test standards:

1. ANSI/SPRI ES-1-98 Test Method RE-2 Pull-Off Test for Fascia: The fascia system shall be tested in accord with the ANSI/SPRI ES-1-98 Test Method RE-2. Use the current edition of ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.

1.03 SUBMITTALS

A. All shop drawings: Submit full size fabrication drawings showing method of anchoring, types and sizes and spacing of fasteners, finish and shop coats of protective sealers, locations and details of joint required for thermal movement.
   1. Submit shop drawings **(important)** of all Pre-Fabricated transition profiles as shown on drawings.

B. Samples:

1. Submit sample for approval of each profile, with gauge and finish proposed.
2. Typical corner unit.

C. Guarantee: Submit as specified.

1.04 PRODUCT HANDLING

A. Sheet metal and fabricated work, handled carefully to prevent damage to surfaces, edges and ends.

1. All materials shall arrive in the manufacturer's original sealed, labeled containers.
2. The contractor shall report damaged material immediately to the delivering carrier and note such damage on the carrier's freight bill of lading.
3. Store materials above ground in dry, well vented, location and protect from damage.
4. Damaged items will be rejected, removed from project and replaced at no cost to the Owner.
5. Remove protective plastic surface film after installation.

1.05 **JOB CONDITIONS**

A. Coordinate sheet metal work with other work to insure delivery to project of built-in items and materials in sufficient time to avoid delays.

1. Provide sufficient information to others of locations of blocking, nailers and backing required for sheet metal work. Provide templates where necessary.

1.06 **WARRANTY/GUARANTEE**

A. Manufacturer's Standard Warranty: Warranted materials shall be free of defects in material and workmanship for five years after shipment. If, after inspection, the manufacturer agrees that materials are defective, the manufacturer shall at their option repair or replace them. For decorative finish warranty, consult manufacturer.

B. Special Performance/20-Year Excel Warranty: Manufacturer shall guarantee that a standard size roof edge system, when installed per manufacturer's instructions, will not blow off, leak, or cause membrane failure, even in wind conditions up to 90 mph (V3s), or the manufacturer shall replace or repair their materials. All gravel stops and copings must be written into and covered by Full Roof System Warranty from roof membrane manufacturer.

C. Pre-finished color coated metals shall be manufacturer guaranteed in writing for a 20 year life.

PART 2 PRODUCTS

2.01 **MANUFACTURERS**

A. Hickman Edge Systems, 4 Commerce Way, Arden, NC (828)-676-1700.
B. Metal-Era Inc., 1600 Airport Road, Waukesha, WI 53188, (800) 558-2162
C. Pac-Clad Peterson Aluminum, 9060 Junction Drive, Annapolis Junction, MD 20701 (800) 344-1400

2.02 **GRAVEL STOP/FASCIA SYSTEM**

A. Manufacturers
1. Econosnap Fascia at Single-Ply roofs and SafeGuard NP at Modified Bitumen roofs, by Hickman Edge Systems. **(BASIS OF DESIGN)**
2. Perma-Tite System 200 Fascia at Single-Ply roofs and Perma-Tite System 300 Fascia at Modified Bitumen roofs, by Metal-Era Inc
3. PAC-LOC Fascia 2000 at Single-Ply roofs and PAC-LOC 3000 at Modified Bitumen roofs by Pac-Clad.

B. Gravel Stop/Fascia System:

1. Edge metal fascia with continuous galvanized steel spring cant to terminate single-ply roofing at perimeter. The system shall be watertight with concealed splice plates and no exposed fasteners.

   a. Roof edging shall lock membranes, preventing wind pullback.
   b. Fascia shall freely thermal cycle on spring cant substrate, preventing periodic maintenance.
   c. Fascia may be factory modified for true radius application.

2. Fascia metal gauge: .050” thick formed aluminum in Std. 10’-0” lengths with matching concealed joint splice plates.

3. Spring cant: Shall be continuous 24 gauge commercial type G90 galvanized steel at 10’-0” standard lengths.

4. Fasteners: Stainless steel 1-1/2” ring shank nails as provided by the manufacturer. No exposed fasteners permitted.

5. Exterior fascia finishes: Mill Finish Aluminum and 70% PVDF coating from manufacturer’s standard colors unless otherwise noted. Color to be selected by the Architect.

2.03 **DRIP EDGE/FASCIA**

A. Drip Edge Fascia by Hickman Edge Systems. BASIS OF DESIGN

B. One Flash-Thru Drip Edge by Metal-Era, Inc.or Hickman Edge Systems Drip Edge

C. Paraguard Extruded Edge AT Fascia or Paraguard Gravel Stop profile or profile to match Hickman and Metal-Era, by Siplast.

D. Consists of a formed 20 Ga. Galvanized cleat, formed fascia cover and hidden 4 in. splice plates. Fascia covers are .050-in. 70% PVDF coated aluminum.

2.04 **ACCESSORIES**

A. Corners, custom end caps and closures, fascia extenders, etc., shall be fabricated by the fascia manufacturer. Mitered corners shall be welded. Sizes as indicated on drawings.

B. Provide other special fabrications as detailed and shown on drawing.

C. All accessories shall be .050 aluminum with finish and color to match fascia system, unless otherwise indicated.

PART 3 EXECUTION

3.01 **INSPECTION**

A. Inspect all surfaces to receive sheet metal. Verify that gravel stop and other accessory metal installation will not disrupt other trades, and that backing, blocking, and nailers are installed straight, true to line, plumb and level. Verify that substrates are sound, smooth, dry, clean, free of foreign matter or defects that would adversely affect the installation of

the gavel stop system. Report and correct defects prior to any installation. Starting of sheet metal work constitutes acceptance of backing.

1. Before manufacturer fabrication, contractor is to take field measurements to verify slopes and dimensions of surfaces to be covered.

3.02 **INSTALLATION**

A. Submit product design drawings for review and approval to Architect before fabrication.

1. Install pre-manufactured metal systems with edges, arises and angles sharp and true to line, plane surfaces free from wave, warp and buckle.
2. Finish work free from water leakage under all weather conditions.
3. Provide all accessories required to complete the installation.
4. Fastening concealed unless detailed otherwise.

B. Installing contractor shall check as-built conditions and verify the manufacturer's coping details for accuracy to fit the wall assembly prior to fabrication. The installer shall comply with the manufacturer's installation guide when setting gravel stops copings and other premanufactured components.

C. Installer shall furnish mechanical fasteners with minimum 240 # (109 kg) pull-out resistance consistent with manufacturer's instructions; threaded and suitable for parapet substrates.

3.03 **PROTECTIVE COATING**

A. Sheet metal members abutting or membering on or into adjacent dissimilar material, isolate as required to minimize possibility of galvanic action.

1. Paint metal in contact with roofing prior to installation with one coat of bituminous paint.

END OF SECTION 07 71 10 - PRE-MANUFACTURED GRAVEL STOP SYSTEMS

SECTION 07 71 23 – GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.01 DESCRIPTION

A. Gutters, downspouts and splash blocks.

B. Related work specified elsewhere:

1. Roofing System: Section 07
2. Flashing and Trim – Section 07 60 00

1.02 SUBMITTALS

A. Product Data: Catalog sheets, specifications, and installation instructions for each material specified.

B. Samples:
1. Gutter: 12 inches long, full section.
2. Downspout: 12 inches long, full section.
3. Hanger Brackets, Braces, and Stiffeners: One, each type.
4. Fasteners: Six, each type.
5. Sealant: One pint or standard tube.
6. Color Samples: Coil stock manufacturer's standard range of colors for finish specified.

C. Shop Drawings: Show method of forming, jointing, and securing the gutters and downspouts. Include attachment to adjoining construction.

1.03 DELIVERY, STORAGE AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store materials in a dry, protected, well-vented area.

C. Remove protective plastic surface film immediately before installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Prefinished Aluminum:
1. Finish: High-Performance Organic Finish: Factory-applied, baked-on finish formulation containing a minimum of 70 percent polyvinylidene fluoride (PVDF) resin by weight in the total resin vehicle, utilizing licensed Arkema Kynar 500® or Solvay Hylar 5000® resin technology. Finish shall comply with AAMA 2605 requirements for testing, performance, and durability. Reverse side primed. Shipped with strippable protective tape.
2. Manufacturers:
   a. The Sherwin-Williams Company; Fluropon
   b. PPG Industries, Inc; Duranar
   c. AkzoNobel Coatings, Inc; TRINAR

2. Color: As chosen by Architect from manufacturer's standard colors.
3. Components:
   a. Hung Gutter: 0.050 inch aluminum.
   b. Downspouts: 0.040 inch aluminum.
   c. Outlet Tube, Offsets, and Elbows: 0.040 inch aluminum.
   d. Gutter Hanger Brackets: 1/8 inch by one inch wide stainless steel bar, mill finish.
   e. Gutter Braces: 0.050 inch aluminum, hemmed and stiffened.
   f. Gutter Stiffener: 1/8 inch x 3/4 inch stainless steel bar.
   g. Downspout Support Hanger: 0.040 inch aluminum.
   h. Wire Strainers: Stainless Steel wire type.
4. Fasteners:
   a. Screws, Bolts, and Other Fastening Accessories: Stainless Steel.
   b. Rivets: Stainless steel or matching aluminum, minimum diameter 3/16 inch

B. Sealant:
   1. Silicone, one part, low modulus.
   2. Butyl rubber, one part.

C. Gutter Lap Tape: ETERNABond Flashing Tape with Aluminum foil facer; 20mil thickness, 4EvaSeal Aluminum-Backed Tape, or Dicor DiSeal with an aluminum foil facer.

2.02 **FABRICATION**

A. Fabricate gutters, downspouts, and fittings to the shape and profile indicated on the Drawings. When fabrication details are not indicated follow the applicable requirements of the Architectural Sheet Metal Manual of the Sheet Metal and Air Conditioning Contractors National Association, Inc.
   1. Form gutters and downspouts in minimum 10 foot long sections.

2.03 **ACCESSORIES**

A. Splash Pad: Precast concrete, 3500 psi. Form splash pads with a sloped depressed center area. Approximate size, one foot wide x two feet long.

PART 3 EXECUTION

3.01 **PREPARATION**

A. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.
   1. Coordinate installation of roof perimeter flashing with installation of gutter system.

3.02 **JOINING**

A. Join steel sections with one inch wide lapped, riveted, and sealed seams. Seal seams with butyl tape sealant within the lap and polyester cloth embedded in silicone sealant over the entire joint. Use 3/16 inch diameter rivets spaced on inch oc.

3.03 **INSTALLATION**

A. Installation of Hung Gutters:
   1. Join and seal the gutter sections, end pieces, mitered corners, and outlet tubes.
   2. Install expansion joints where indicated on the drawings. If not indicated, place the expansion joints at mid points between the downspouts at maximum intervals of 48 feet.
      a. Form the expansion joints with end baffles conforming to the shape of the gutter. Join the baffles to the gutter section.
      b. Install a cover plate over the baffle.
   3. Install a continuous stiffener bar along the top front edge of the gutter. Fold the gutter around the stiffener bar so it is securely locked in place.
   4. Install gutter braces 3 feet o.c., staggered from the gutter hanger brackets. Secure the braces to the stiffener bar and to the back vertical portion of the gutter.
   5. Secure the top back edge of the gutter to the gravel stop, eave flashing, or continuous cleat as indicated on the drawings.

B. Installation of Downspouts:
   1. Join the downspout sections with end joints that telescope at least 1-1/2 inches.
   2. Install necessary offsets and elbows.
   3. Secure downspout with hangers at top and bottom and 5'x 0" o.c. with a minimum of 2 hangers at each downspout section. Form hangers to keep downspouts 1 inch away from wall.
   4. Fasten downspouts to hangers with sheet metal screws.
   5. Secure hangers to structural steel with power actuated fasteners.
   6. Discharge Elbows: Fasten leader shoes to downspouts with a minimum of 3 sheet metal screws.

C. Installation of Splash Pads: Install splash pads under discharge elbows with membrane slip sheets.

END SECTION 07 71 23 – GUTTERS AND DOWNSPOUTS

SECTION 07 72 00 - ROOF ACCESSORIES

PART 1 GENERAL

1.01 **DESCRIPTION**

A. Scope of Work:
1. Pipe Support Systems
2. Vent Stack Flashings
3. Sleeper Equipment Supports.
4. Roof Hatch Safety Rail
5. Ladder Safety Post
6. Roof System Informational Signage
7. Ballasted Guardrail System
8. Walkway Pads
9. Roof Hatch
10. Pipe Chase Housing
11. Horizontal Lifeline Fall Protection System

B. Related work specified elsewhere:

1. Roofing System: Section 07

1.02 **SUBMITTALS**

A. Product Data:

1. Submit manufacturer's catalog cut sheets.

PART 2 PRODUCTS

2.01 Pipe Support Manufacturers:

A. Miro Industries, Inc., 2700 South 900 West, Salt Lake City, UT 84119, Tel: (800) 768-6978, Model No. 4-RAH-12, or size as required for existing conduit/pipe diameter, height as required.

B. PHP Systems/Design, 5534 Harvey Wilson Drive, Houston, TX 77020, Tel: (800) 797-6585, Model No. PP10 with Roller, or size as required for existing conduit/pipe diameter, height as required.

C. 2005 Advanced Support Products, Inc.P.O. Box 1284 Tomball, Texas 77377 Tel: (800) 941-5737, Model No. SS1000RA Low Profile Pipe Support (Adjustable), or size as required for existing conduit/pipe diameter, height as required.

2.02 Vent Stack Flashing: Thaler Model # SJ-26 Removable cap insulated stack flashing 12" high .064 mill finished 1100-OT alloy aluminum with EPDM base seal.

2.03 Sleeper Equipment Supports: As manufactured by Pate or equal. Type ES-2, 3 ½” wide by height as required by details.

2.04 Roof Hatch Safety Rail: Permanent bolt-on railing system for safe egress and ingress through roof hatch meeting OSHA Standard 29 FR 1910.23. As manufactured by Bilco, Bil-Guard Hatch Railing System, or equal products by KeeHatch Railing Systems, or Milcor, Inc.

2.05 Ladder Safety Post

A. Device shall be steel, powder-coat finished. Unit shall be completely assembled with fasteners for securing to the ladder rungs in accordance with the manufacturer's instructions
B. Bilco Company, Model LU-1, JL Industries LP-4 Extendable Safety Ladder Post, or Global Industrial Yellow Powder Coat Steel Ladder Safety Post.

2.06 Roof System Informational Signage

A. Sign shall be mounted to roof access hatch interior or interior near penthouse door, if available.
B. Sign shall state description of roof system, installation date, warranty period and membrane manufacturer contact information.
C. Sign shall be acrylic with vinyl lettering or vinyl.

2.07 Ballasted Guardrail System:

A. A self-supported, counterbalanced and freestanding guardrail system, Kee Safety, Inc, "KeeGuard" Railing, Buffalo, NY BASIS OF DESIGN) or similar products by:
1. Safety Rail Company, Spring Park, MN.
2. FixfastUSA "Kattsafe GR34 Railing", Whitestown, IN, 1-888-337-7872

B. Guardrail system shall meet or exceed OSHA requirements under Standard 29 CFR 1910.23.

C. Vertical and horizontal pipes shall be 1-1/2" diameter, Schedule 40 galvanized steel meeting ASTM A153 requirements.

2.08 Walkway Pad (Type 1) - Flexible Walkways: By membrane manufacturer. Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 5 mm (3/16 inch) thick, and acceptable to membrane roofing system manufacturer.

Walkway Pad (Type 2) - Rubber Roof Walkway Pads: By membrane manufacturer or RubberForm Recycled Products, LLC,75 Michigan Street, Lockport, NY 14094-2629, 1-866-424-6981 or approved equal.

A. Standard Paver size: 2 feet by 2.5 feet and 1.5 inches in depth.

B. Pavers are composed of 100% recycled rubber.

NOTE: Provide protection pads under Rubber Walkway Pads as required by roof membrane manufacturer.

2.09 Roof Hatch

A. Basis-of-Design Manufacturer: Type S-50TB Roof Hatch by The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-800-366-6530, Fax: 1-203-535-1582, Web: www.bilco.com. Equal products manufactured by Milcor, Inc. (div of Hart & Cooley, Inc) and Metallic Products Corp. are also acceptable.

B. Furnish and install where indicated on plans metal roof hatch Type S-50TB, size to match existing. The roof hatch shall be single leaf. The roof hatch shall be pre-assembled from the manufacturer.

2.10 Pipe Chase Housing

A. Aluminum Pipe Chase Housing: Roof Products Inc., 7616 Lee Highway, Chattanooga, TN 37421, (800) 262-6669, roofproductsinc.com; Model # RPPC-90 pipe chase housing:
1. Aluminum Body and Lid: Removable and gasketed, minimum 18 gauge ASTM A 653 G90 hot-dipped galvanized steel, with integral to frame and welded deck flange compatible with deck and roof membrane.
2. Removable sloped 18 gauge galvanized metal cap with ¾ inch plywood.
3. Corners: Mitered and welded. Bolted connections are not accepted.
4. Exit Seal for existing pipe sizes.
5. Curb size to match existing.
6. Flashing height as shown on drawings.

2.11 Horizontal Lifeline Fall Protection System:

A. Design horizontal lifeline fall protection system to provide for safe execution roof equipment maintenance including travel restraint. Anchors consisting of hollow steel supports and mounting plates bolted to existing metal screen wall structure, as shown on details.

1. Acceptable manufacturer and product includes Kee Safety, Kee Line for Structures, Buffalo, NY (BASIS OF DESIGN) or equivalent system by Guardian Fall Protection, Kent, WA, Rooftop Anchor, Inc., Heber City, UT.

2. Horizontal Lifeline fall protection system (roof application) meeting OSHA 1910.140.

PART 3 EXECUTION

3.01 **GENERAL**

A. All existing roof leaders shall be plugged during the roofing operation to prevent anything from entering the leader. Unplug drains at the end of each day's work so that the roof may drain in the event of rain. Upon completion of the roofing and the drain installation, all drains shall be opened and tested for operation before final acceptance of the work.

END SECTION 07 72 00 - ROOF ACCESSORIES

SECTION 07 90 00 - SEALANTS

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The work of this section includes all labor, material, plant, tools, equipment, trucking, insurance and all related items to furnish and install all work of this section as shown by the drawings and specifications.

   Provide caulking and sealants at all openings and penetrations as indicated and specified to provide a weather-tight structure for all new construction. Caulk around cap flashings, gravel stops, copings and counterflashings with approved sealant.

2. The following items are specifically included without limiting the generality implied by these specifications:

   a. Caulk with sealing compound:

      1) Joints in copings, expansion joints and sill flashings.
      2) Miscellaneous joints where indicated on the drawings.

B. Related work specified elsewhere:

1. Section 07 60 00 - Flashing & Sheet Metal.

1.02 QUALITY ASSURANCE

A. Use only qualified workmen thoroughly skilled and especially trained in the techniques of caulking, who can demonstrate their ability to fill joints solidly and neatly.

B. Mixing and application of sealing compound shall be in strict accordance with the manufacturer's printed directions. Initial mixing and application shall be under the direct supervision of the manufacturer's representative.

1.03 SUBMITTALS

A. Samples:

1. Submit samples for color selection for each type sealant.
2. Pieces of backing material 6" long of each type.

B. Product Data:

1. Manufacturer's specifications, recommendations and installations for sealant, backing and associated materials.
2. Manufacturer's published data, Letter of Certification or Certified Test Laboratory Report that each material complies with requirements and is intended for application indicated.

1.04 **DELIVERY, STORAGE AND HANDLING**

A. Deliver caulking and sealing compounds to the job in unbroken, sealed containers bearing the manufacturer's mixing directions. Store materials in sealed containers in a dry protected area above the ground or floor in an area maintained at (plus or minus) 70°F.

B. Protect caulking materials before, during and after installation. Protect the installed work of other trades during installation.

C. Do not use caulking materials that have been stored for a period of time exceeding the maximum recommended shelf life of the materials.

1.05 **CERTIFICATES AND GUARANTEE**

A. The Contractor shall furnish, in duplicate, to the Architect and before work is started, an affidavit or certificate of compliance from the manufacturer of the materials proposed for use stating that the material meets the standards and requirements specified.

B. Provide manufacturer's standard guarantee.

C. Upon completion of the work the Contractor shall furnish to the Architect a written guarantee that all joints will remain full and will be watertight for a period of two (2) years from completion and acceptance of the contract work.

1.06 **JOB CONDITIONS**

A. No exterior caulking shall be applied when the air temperature is under 40°F.

PART 2 PRODUCTS

2.01 **NON-TRAFFIC BEARING SEALANT: (Urethane)**

A. Two parts Elastomeric Sealant meeting U.S. Federal Spec. No. TT-S-00227E, Type II, Class A.

B. Uses:

1. At all exterior and interior locations where caulking is intended to provide a water-tight seal. WITH THE EXCEPTION OF USE WITH KYNAR COATED METAL.

2.02 **NON-TRAFFIC BEARING SEALANT: (Silicone)**

A. One part, neutral cure Silicone Sealant meeting ASTM C920 Type S, Grade NS, Class 25 and ASTM C719 +/-25% movement.

B. Uses:

1. At all exterior joints in contact with KYNAR coated metal.

2.03 **TAPE SPACERS**

A. 1/8” polybutene tape, install where aluminum meets ferrous metal or masonry.

2.04 **PRIMER**

A. Primer, solvents, and cleaners, non-staining, of type proven by tests to be compatible with the compound or sealant used. The brand used shall be as recommended by the manufacturer of the compound or sealant. The manufacturer's recommendations shall be followed in handling, storing, and curing.

2.05 **CLEANER**

A. As recommended by sealant manufacturer.

2.06 **SEALANT COLOR**

A. Approximate color of adjoining material unless otherwise indicated.

PART 3 EXECUTION

3.01 **PREPARATION OF SURFACES**

A. Primer

Thoroughly clean joints and apply primer prior to application of joint backing, bond breaker or sealants.

1. Protective coatings such as lacquers, rust-preventing coatings, oil or wax film, etc. must be removed from all metal surfaces, and solvents wiped dry.
2. Brick, concrete block, concrete, mortar joints, etc., shall be brushed clean and all loose particles removed. Joints in the above surfaces shall be primed as recommended by the manufacturer of the sealing compound or sealant used, and allowed to become dry before application.

B. Joint Backing

In joints where the depth of the joint exceeds the required depth of the sealant, install joint backing to provide backing and uniform depth of sealant. Joint backing shall be installed with approximately 30% compression. Do not stretch, twist, puncture or tear joint backing. Butt joint backing at intersections.

C. Bond Breaker Tape

Install bond breaker tape smoothly at back of joint where backing is not required or cannot be installed. (Sealant shall adhere only to the sides and not to the back of the joint so as to eliminate three-sided adhesion).

D. Painted surfaces should be caulked before application of final coat of paint.

E. All joints improperly caulked or failing shall be completely cleaned and re-caulked.

1. Failure shall be considered as: leakage, hardening, cracking, crumbling, shrinking, running or sagging of compound, staining of adjacent surfaces, or any

condition not characteristic of the compound use.

3.03 **INSTALLATION**

A. Sealant Application

Apply sealant in accordance with manufacturer's application manual and instruction, using hand guns or pressure equipment, with proper nozzle size, on clean, dry, properly prepared substrates. Force sealant into joint and against sides of joint to make uniform. Avoid pulling of the sealant from the sides. Fill sealant space completely with sealant.

B. Tooling

Tooling is required to ensure firm full contact with the interfaces of the joint. Tool joints to form smooth, uniform beads with slightly concave surfaces. Finish joints shall be straight, uniform, smooth, neatly finished. Remove any excess sealant from adjacent surfaces of joint, with no pin holes or voids, leaving the work in a neat, clean condition. Tooling agents should only be used if recommended by the sealant manufacturer.

C. Where an irregular surface or sensitive joint border exists, the applicator shall apply masking tape at the edge of the joint to insure joint neatness and protection. Tape to be removed after sealant is applied.

3.04 **CLEANING**

A. Clean of excess compound or smears immediately to the satisfaction of the Architect with cleaning material recommended by the manufacturer of the compound. Leave all work neat and clean.

END OF SECTION 07 90 00 - SEALANTS

SECTION 08 22 50 - FRP/ ALUMINUM HYBRID DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Custom size Fiberglass reinforced polyester doors shown on drawings.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, standard details, and installation recommendations for components of fiberglass reinforced polyester doors required for project including test reports certifying that products have been tested and comply with performance requirements.

B. Shop Drawings: Submit shop drawings for fabrication and installation of fiberglass reinforced polyester doors, including elevations, detail sections of typical composite members, hardware mounting heights, anchorages, reinforcement, expansion provisions and glazing.

C. Samples: Submit 6" x 6" samples of each type and color of fiber reinforced polyester finish, and 12" long sections of extrusions or formed shapes. Where normal color and texture variations are to be expected, include 2 or more units in each set of samples showing limits of such variations.

D. Test and Evaluation Reports:

1. Material test reports.
2. Product test reports..
3. Research reports.

E. Sample warranties.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Shall have produced fiberglass reinforced polyester doors for at least four years. Shall have completed projects of similar building type and size as this project.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 DELIVERY, STORAGE AND HANDLING

A. All materials supplied shall be delivered to the jobsite in their original, unopened packages with labels intact. Materials shall be inspected for damage, and the manufacturer informed of any discrepancies. Unsatisfactory material shall not be used.

B. All materials supplied shall be packaged in individual corrugated cartons. Doors shall "float" within cartons, with no portion of door in contact with outer shell.

1.7 WARRANTY

A. Warrant doors and factory installed hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.

B. Warranty Period: Ten (10) years.

C. Finish Warranty:

1. Through-Color FRP face sheets: 10 years.
2. Kynar painted aluminum: 10 years.

D. Limited Lifetime Warranty

1. Covers failure of corner joinery, core deterioration, and delamination or bubbling of door skin and corrosion of all-fiberglass products while the door is in its specified application in its original installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire Performance Characteristics: Provide Class ‘A’ fiber reinforced polymer faces with the following surface burning characteristics as determined by testing identical products per ASTM E 84 by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction.

1. Flame Spread: 25 or less.
2. Smoke Developed: 450 or less.

B. Door Assembly.

1. Physical Endurance, ANSI A250.4: 25,000,000 Cycles, No Damage.
2. Salt Spray, ASTM-B117: 500 hours minimum exposure.
3. Air Leakage, NFRC 400, ASTM-E283.

a. Opaque Swinging Door (< than 50% glass)
b. 0.01 cfm/sqft @ 1.57 psf.

C. Structural Performance, ASTM E-330.

1. Single or Pair of Doors, 8’4” x 8’2” overall size, single point latching.: ± 75 psf design pressure, pass.

D. Forced Entry, AAMA 1304.

1. Single or Pair of Doors, 6’8” x 7’8” overall size, 3-point latching.
2. 300lb Pull Test, pass.

E. Static Air Pressure, TAS 202.

1. Single or Pair of Doors, 6’8” x 7’8” overall size, 3-point latching.
2. ± 65 psf design pressure, pass.
3. Forced Entry, 300lb Pull Test, pass.

F. Cyclic Wind Pressure Loading, TAS 203.

1. Single or Pair of Doors, 6’8” x 7’8” overall size, 3-point latching.
2. ± 65 psf design pressure, pass.

G. Security Test, ASTM-F476: Minimum Grade 40.

H. Thermal Transmittance NFRC 100 – Door assembly U-factor = 0.31 Btu/hr·ft²·°F.

2.2 MANUFACTURERS

A. Manufacturers that may be incorporated into the project include:

1. Special-Lite, Inc. (Basis of Design SL-17 Pebble Grain FRP Door)
2. Tubelite, Inc.
3. Commercial Door Systems.

2.3 MATERIALS

A. Aluminum Members: ASTM B 221 for extrusions and ASTM B 209 for sheet and plate.

B. Steel Reinforcement: ASTM A 36 for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 for hot-rolled sheet and strip.

C. Fiberglass Reinforced Polymer Face Material: 0.120 inch min. thickness, with color integral through full thickness of face sheet. Provide pebble-like embossed finish for flush doors.

D. Core Material: Urethane foam.

E. Fasteners: Aluminum or stainless steel.

2.4 DOORS

A. General: Provide standard flush style embossed panel doors, constructed of aluminum stiles and rails joined with steel tie rods, with polymer face sheets and foamed-in-place urethane inner core.

B. Construction.

1. Door Thickness: 1-3/4".

C. Stiles & Rails.

1. Aluminum extrusions made from 6063 aluminum alloys with a minimum temper of T5.
2. Minimum 2-5/16" deep one-piece extrusion with have integral reglets to accept face sheet on both interior and exterior side of door which secure face sheet into place and permit flush appearance.
3. Screw or snap in place applied caps are not acceptable.
4. Top rails must have integral legs for interlocking continuous extruded aluminum flush cap.
5. Bottom rails must have integral legs for interlocking continuous weather bar with single nylon brush weather stripping or manually adjustable SL-301 door bottom with two nylon brush weather stripping.
6. Meeting stiles to include integral pocket to accept pile brush weather seal.

D. Mitered Corners.

1. Secured with 3/8" diameter full-width steel tie rod through extruded splines top and bottom which are integral to standard tubular shaped rails.
2. 1-1/4" x 1-1/4" x 3/16" 6061 aluminum angle reinforcement at corner to give strong, flat surface for locking hex nut to bear on.
3. Weld, glue, or other methods of corner joinery are not acceptable.

E. Core.

1. Poured-in-place polyurethane foam.
2. Laid in foam cores are not acceptable.
3. Standard door assembly can be tested to show it meets these requirements without the use of thermal barrier. If no independent testing conducted all doors with foam plastic core must have a thermal barrier.

F. Face Sheet.

1. Exterior: 0.120" thick, pebble texture, through color with integral surfaseal film FRP sheet.
2. Class C standard.

G. Interior: 0.120" thick, pebble texture FRP sheet. Painted finish if required.

1. Class A.

H. Attachment of face sheet.

1. Extruded stiles and rails to have integral reglets to accept face sheet on both interior and exterior side of door which secure face sheet into place and permit flush appearance.
2. Use of glue to bond face sheet to core or extrusions is not acceptable.

I. Hardware.

1. Pre-machine doors in accordance with templates from specified hardware manufacturers.
2. Surface mounted closures will be reinforced for but not prepped or installed at factory.

3. Factory install door hardware.

J. Reinforcements.

1. Aluminum extrusions made from 6061 or 6063 aluminum alloys.
2. Sheet and plate to conform to ASTM-B209.
3. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.
4. Bars and tubes to meet ASTM-B221.

2.5 FABRICATION

A. Doors shall be factory assembled.

1. Door components from the same manufacturer.
2. Required size for door units, shall be as indicated on the drawings.
3. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
4. All cut edges to be free of burs.
5. Maintain continuity of line and accurate relation of planes and angles.
6. Secure attachments and support at mechanical joints with hairline fit at contact surfaces.

2.6 DOOR HARDWARE

A. Hardware (Basis of Design) shall include the following:
1. Continuous Hinge: To be Special Lite SL 11HD continuous hinge in anodized aluminum, unhanded and Kynar finished color to match door frame.
2. Door Closer: To be LCN 4111 CUSH with hold open function (x Cush Shoe Support & Blade Stop Spacer as required). Closer shall be cast iron with full rack and pinion action. Hydraulic fluid shall be of a type requiring no seasonal adjustment for temperatures ranging to (30 deg.F). Closer cylinder bore shall be minimum 1-1/2". Closers shall have been independently tested to pass a minimum 10 million cycle door opening closing cycles. Closer shall have a (10) ten-year warranty.
3. Pre-machine doors in accordance with templates from specified hardware manufacturers indicated for Locksets, Cylinder, Weatherstripping, Sweep, Astragal, and Threshold:
   a. Lockset: ASSA ABLOY (Sargent 8200 Series 06 Storeroom Function).
   b. Cylinder: Sargent 40 Series.
   c. Weatherstripping: National Guard products
   d. Finishes: All, 629 Polished Stainless Steel.
   e. Keying: Cylinder and keying must meet client's current cylinder and keying requirements – Best CORMAX.
4. Weatherstripping is required on both the hinge and strike sides and the top and bottom of all doors. Thresholds shall be full length of opening in widths indicated and required by the details on the drawings.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect all surfaces to receive work and notify General Contractor in writing of conditions detrimental to the proper and timely completion of the work. Commencement of work shall signify acceptance of conditions and any subsequent adjustments shall be the responsibility of the door subcontractor.

3.2 INSTALLATION

A. General: Installation of doors shall be by the supplier of door material only.
   1. All joints between metal and masonry shall be shimmed 3" and a 3" reveal provided for caulking.
   2. Repair and refinish all components in this section if damaged by the construction process.
   3. Provide insulation of dissimilar metals by taping or spraying with lacquer.
   4. Clearances: Door shall be installed with proper clearances and shall operate smoothly and easily.

3.3 COMPLETION

A. Upon completion of installation, leave areas of work in neat clean condition. Remove all debris caused by work of this Section from premises.

B. Upon completion of installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist or distortion and fitting weather-tight for the entire perimeter.

END OF SECTION 08 22 50

SECTION 08 63 00 - METAL-FRAMED SKYLIGHTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes factory fabricated, field glazed ridge and hipped glass skylights.

B. Related Requirements:
1. Section 07 72 00 “Roof Accessories” for related roof curb requirements.
2. Section 07 90 00 "Sealants" for related sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide metal-framed skylights 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 edge of glass in a direction perpendicular to glass plane not exceeding L/175 of the glass edge length for each individual glazing lite.

C. Structural Loads: Provide metal-framed skylights, including anchorage, capable of withstanding the effects of the following design loads when supporting full dead loads:
1. Roof Loads

a. Concentrated Load: 300 lbs applied to framing members at location that produces the most severe stress or deflection.
b. Snow Loads: Ground Snow Load 40 psf
c. Roof Loads: Uniform Distributed Live Load 20 psf
d. Wind Loads: Vult 117 mph, Vasd 86 mph

2. Seismic Loads: Seismic Design Category B

D. Structural Performance: Provide metal-framed skylights, 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 skylights 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 skylights 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 skylights that meet current State Energy Code requirements (2015 IECC), including:

1. NFRC 100 rated U-factor of .75 or less.
2. NFRC 200 rated SHGC of .60 or less.

I. Thermal Movement: Provide metal-framed skylights 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. Water Test: If units are not factory assembled or shop-glazed, the Contractor shall perform an AAMA Hose Nozzle Water spray test in the presence of the Architect and/or owner.

1.4 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions and profiles of components, and finishes for metal-framed skylights.

B. Shop Drawings: For metal-framed skylights. Include plans, elevations, sections, details, and attachments to other work as required.

C. Samples for Initial Selection: Manufacturer’s color charts consisting of sections of units showing the full range of colors available for factory-finished aluminum.

D. Samples for Verification: Provide color sample of selected finish on 2"x3" aluminum sheet.

E. Installer Certificates: If required, signed by manufacturer certifying that installers comply with requirements.

F. Product Test Reports: From a qualified testing agency indicating skylights comply with requirements, based on comprehensive testing of current products.

G. Field quality-control reports.

H. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal-framed skylights to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Qualifications: Manufacturer: skylight system shall be manufactured by a firm with a minimum of ten (10) years experience in the fabrication and installation of factory fabricated, assembled, and glazed metal-framed skylights.

B. Installation: skylight installer shall have a minimum of two (2) years' experience erecting factory fabricated, assembled, and glazed metal-framed skylights.

C. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

D. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.

1.7 WARRANTY

A. Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of metal-framed skylights that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures.
2. Failure of systems to meet performance requirements.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Water leakage; defined as uncontrolled water appearing on normally exposed interior surfaces of skylights from sources other than condensation, resulting from defects in skylight materials or workmanship. (Water controlled by flashing and gutters and drained back to the exterior and that cannot damage adjacent materials or finishes is not water leakage). Water leakage resulting from improper installations not part of this warranty.

B. System Warranty Period: 10 years from date of shipment from the manufacturer.

C. Finish Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work with finish defects. "Defects" is defined as peeling, chipping, chalking, fading, abnormal aging or deterioration, and failure to perform as required.

1. Warranty Period for 2605 Powder Finish: 20 years from the date of shipment from the manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements

1. Pinnacle 350 system by Wasco Part of the VELUX Group, Wells, ME, (BASIS OF DESIGN) as provided by RISE Architectural Sales, LLC, Rep: Jeremy Rollison, 716.689.6194
2. OldCastle BuildingEnvelope (OBE); “BMS-3000 Hipped End Ridge Skylight” Curb Mount Skylight System,
3. Kingspan Light and Air USA
4. Crystal Structures.

2.2 FRAMING 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 required 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.
2. Sealant conforms to USDA approval standards.

2.3 GLAZING MATERIALS

A. Insulating glazing system: Unit Thickness 1-1/8” based on the following insulated safety glass composition, or equivalent glass assembly.

a. Exterior lite: 1/4” Guardian clear glass. w/ Sunguard SNX 70+ on surface 2

b. Air space: 1/2 “, 10% air, 90% Argon

c. Interior lite: 5/32” Guardian clear glass, .060” Interlayer: Saflex R Clear PVB, 5/32” Guardian clear glass.

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.
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. 2605 Powder: Powder Coat High-Performance Architectural Coating complying with AAMA 2605. Color: to be chosen by Architect from manufacturer's standard colors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Metal Protection: As follows:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
3. Where aluminum will contact pressure-treated wood, separate dissimilar materials by methods recommended by manufacturer.

3.3 INSTALLATION

A. General: Comply with manufacturer's written instructions for protecting, handling, and installing skylight components.

1. Fit frame joints to produce hairline joints free of burrs and distortion.
2. Rigidly secure non-movement joints.
3. Accommodate thermal and mechanical movements.
4. Install framing components to drain water passing joints and to drain condensation and moisture occurring or migrating within skylight system to the exterior.

5. Coordinate installation of flashings at skylight perimeters to maintain continuity of water barriers.
6. Set continuous curbs and flashings in a full sealant bed, unless otherwise indicated. Comply with requirements in Division 7 Section “Joint Sealants.”

B. Erection Tolerances: Install skylight components true in plane, accurately aligned, and without warp or rack. Adjust framing to comply with the following tolerances:

1. Variation from Plane: Limit variation from plane or location shown to 1/8 inch in 10 feet; 1/4 inch over total length.
2. Alignment: Where surfaces abut in line and at corners and where surfaces are separated by less than 3 inches, limit offset from true alignment to less than 1/32 inch; otherwise, limit offset from true alignment to 1/8 inch.

C. 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

D. Install secondary-sealant weatherseal according to sealant manufacturer’s written instructions to provide weatherproof joints. Install joint fillers behind sealant as recommended by sealant manufacturer.

3.4 CLEANING

A. Clean skylights inside and outside, immediately after installation and after sealants have cured, according to manufacturer’s written recommendations.

1. Remove temporary protective coverings and strippable coatings from pre-finished metal surfaces. Remove labels and markings from all components.

B. Remove excess sealant according to sealant manufacturer’s written recommendations.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency (at Contractor’s expense) to perform tests and inspections in Architect’s or Site Representative presence.
1. Water-Spray Test: After installation of the roofing system but before installation of interior finishes has begun, all skylights are to be tested in accordance with AAMA 501.2 and do not evidence water penetration.

B. Repair or remove work where test results and inspections indicate that it does not comply with specified requirements.

C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

END OF SECTION 08 63 00

SECTION 09 23 00 - GYPSUM PLASTERING

Section Includes:

1. Repair of gypsum plaster.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: Where indicated, provide gypsum plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E119 by a qualified testing agency.

2.2 EXPANDED-METAL LATH

A. Expanded-Metal Lath: ASTM C847, cold-rolled carbon-steel sheet with ASTM A653/A653M, G60 (Z180), hot-dip galvanized-zinc coating.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. AMICO, a Gibraltar Industries company.
    b. ClarkDietrich.
    c. Phillips Manufacturing Co.

2. Diamond-Mesh Lath:

    a. Type: Flat.
    b. Weight: 2.5 lb/sq. yd. (1.4 kg/sq. m).

2.3 ACCESSORIES

A. General: Comply with ASTM C841, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Metal Accessories:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. AMICO, a Gibraltar Industries company.
    b. ClarkDietrich.
    c. Phillips Manufacturing Co.

2. Cornerite: Fabricated from expanded-metal lath with ASTM A653/A653M, G60 (Z180), hot-dip galvanized-zinc coating.
3. Striplath: Fabricated from expanded-metal lath with ASTM A653/A653M, G60 (Z180), hot-dip galvanized-zinc coating.
4. Cornerbeads: Fabricated from zinc or zinc-coated (galvanized) steel.

    a. Smallnose cornerbead with expanded flanges; use unless otherwise indicated.
    b. Smallnose cornerbead with perforated flanges; use on curved corners.
    c. Smallnose cornerbead with expanded flanges reinforced by perforated stiffening rib; use on columns and for finishing unit masonry corners.
    d. Bullnose cornerbead, radius 3/4-inch (19-mm) minimum, with expanded flanges; use at locations indicated on Drawings.

5. Casing Beads: Fabricated from zinc or zinc-coated (galvanized) steel; square-edged style; with expanded flanges.
6. Control Joints: Fabricated from zinc or zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
7. Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
8. Two-Piece Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4 to 5/8 inch (6 to 16 mm) wide; with perforated flanges.

2.4 MISCELLANEOUS MATERIALS

A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Bonding Compound: ASTM C631.

C. Fasteners for Attaching Metal Lath to Substrates: ASTM C841.

D. Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch (1.21-mm) diameter unless otherwise indicated.

E. Mix Additives: Use gypsum plaster accelerators and retarders from plaster manufacturer if required by Project conditions. Use only additives that manufacturer recommends in writing for use with plaster to which it is added.

2.5 BASE-COAT PLASTER MATERIALS

A. Lightweight-Gypsum Ready-Mixed Plaster: ASTM C28/C28M, with mill-mixed perlite aggregate.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Gold Bond Building Products, LLC provided by National Gypsum Company.
    b. USG Corporation
    c. Hamilton Drywall Products

B. Aggregates for Base-Coat Plasters: ASTM C35, sand.

2.6 FINISH-COAT PLASTER MATERIALS

A. Gypsum Ready-Mixed Finish Plaster: Manufacturer's standard, mill-mixed, gaged, interior finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Gold Bond Building Products, LLC provided by National Gypsum Company.
b. USG Corporation
c. Hamilton Drywall Products

B. Lime: ASTM C206, Type S, special finishing hydrated lime.

2.7 PLASTER MIXES

A. Mixing: Comply with ASTM C842 and manufacturer's written instructions for applications indicated.

B. Mix Additives: Use accelerators and retarders, if required by Project conditions, according to manufacturer's written instructions.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.2 INSTALLING EXPANDED-METAL LATH

A. Expanded-Metal Lath: Install according to ASTM C841.

3.3 INSTALLING ACCESSORIES

A. General: Install according to ASTM C841.

B. Cornerbeads: Install at external corners.

C. Casing Beads: Install at terminations of plasterwork, except where plaster passes behind and is concealed by other work and where metal screeds, bases, or frames act as casing beads.

D. Control Joints: Locate as indicated on Drawings.

3.4 PLASTER APPLICATION

A. General: Comply with ASTM C842.

B. Bonding Compound: Apply on substrates for direct application of plaster.

C. Base-Coat Plaster:

1. Over Expanded-Metal Lath:

a. Scratch Coat: Gypsum neat plaster with job-mixed sand.
b. Brown Coat: Lightweight-gypsum ready-mixed plaster.

D. Finish Coats:

1. Smooth-Troweled Finishes: Gypsum ready-mixed finish plaster.

3.5 PLASTER REPAIRS

A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION 09 23 00

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance, and all related and incidental items to furnish and install all work of this section as shown by the drawings and specifications.

B. The following items are specifically included without limiting the generality implied by these specifications:

1. Removal and replacement of interior gypsum wallboard soffit panels using “wet sanding” of joints and trim to eliminate dust as much as possible, in area(s) as shown on the drawings.
2. Removal and replacement of lightweight metal framings (LMF) that is deteriorated or damaged during demolition of existing gypsum wallboard soffit panels.

C. Related Work Specified Elsewhere:

1. Section 09 90 00 - Painting.

1.2 QUALITY ASSURANCE

A. Gypsum wallboard panels specified are those of USG Corporation (800) 950-3839, National Gypsum Company, or American Gypsum.

B. Metal stud products specified are those of Marino/Ware (800) 627-4661, ClarkDietrich Building Systems, or CEMCO.

C. Applicator shall have a minimum five (5) years of documented experience in metal framing, drywall application and finishing.

D. Installation shall be in accordance with the manufacturer’s current printed instructions.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Mold-resistant gypsum wallboard.
2. Interior trim.
3. Joint treatment materials.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products delivered in their original unopened packages and stored in enclosed shelter providing protection from damage and moisture.

B. Damaged or deteriorated materials to be removed from the project site.

1.5 ENVIRONMENTAL CONDITIONS

A. In cold weather and during gypsum wallboard panel joint finishing, temperature within the building shall be maintained within the range of 55 degrees F. to 70 degrees F. Adequate ventilation shall be provided to carry off excess moisture.

PART 2 - PRODUCTS

2.1 GYPSUM WALLBOARD - GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with existing LMF support system indicated on the drawings.

2.2 INTERIOR GYPSUM WALLBOARD

A. Gypsum Wallboard: ASTM C1396/C1396M, for 5/8-inch, Type X, water-resistant gypsum wallboard soffit panels.

1. Manufacturers:
   a. United States Gypsum Company, ultralightweight USG Sheetrock Brand EcoSmart Panels Mold Tough Firecode X
   b. National Gypsum Company
   c. American Gypsum
2. ASTM 136 Non combustibility: Meets.
3. ASTM E-84: Surface Burning Characteristics.

   a. Flame Spread: 5.
   b. Smoke Developed: 5.
   c. Class A (Flame spread not greater than 25 and smoke developed not greater than 450): Meets.

4. ASTM C-473:

   a. Core Hardness:
      .1 Field not less than 11 lbf: Meets.
      .2 End not less than 11 lbf: Meets.
      .3 Edge not less than 11 lbf: Meets.

   b. Flexural Strength:

      .1 Parallel not less than 46 lbf: Meets.
      .2 Perpendicular not less than 147 lbf: Meets.

c. Nail Pull Resistance not less than 87 lbf: Meets.
d. Humidified Deflection not greater than 5/8-inch: Meets.
e. Average Water Absorption not greater than 5% by weight after two-hour immersion: Meets.

5. ASTM D-3273: Meets ASTM C-1396 specification.
   a. Thickness: 5/8-inch.
   b. Length: Eight (8) to twelve (12) feet
   c. Width: four (4) feet.
   d. Weight: 1.85 lb./sq. ft.
   e. Edges: Tapered.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.

1. Material:

   a. Cornerbead: USG No. 093 or products of ClarkDietrich Building Systems or Phillips Manufacturing.
   b. L-Bead: L-shaped; exposed long flange receives joint compound, Trim-Tex Tear Away L-Bead, Phillips Manufacturing gripSTIK L-Tear Strip or gripSTIK Flat L-Tear Strip, or ClarkDietrich Building Systems Vinyl Rip-Bead L-Trim.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use USG Dust Control compound (Basis of Design), National Gypsum Co. ProForm All Purpose with Dust-Tech, or Certainteed Gypsum Dust Away Renovation Mud..

   a. Use compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use dust control compound.
4. Finish Coat: For third coat, use dust control compound.

2.5 AUXILIARY MATERIALS

A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C1002 unless otherwise indicated.

1. Use bugle head screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

PART 3 – EXECUTION

3.1 INSTALLATION AND FINISHING

A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

B. Comply with ASTM C840.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

E. Prefill open joints and damaged surface areas.

F. Cover joints with a thin layer of “Dust Control” joint compound and embed paper tape, except for trim products specifically indicated as not intended to receive tape. Let dry and smooth lightly as required with 150 Fine/Medium Grit drywall sanding sponge blook for wet sanding. Soak sanding sponge block in a bucket of water and squeeze out excessive water from sponge block before wet sanding. Clean sponge as often as required to remove joint compound dust. Apply second coat of joint compound, feathering approximately 2” beyond first coat. Let dry and smooth lightly as required with 150 Fine/Medium Grit drywall sanding sponge blook for wet sanding. Soak sanding sponge block in a bucket of water and squeeze out excessive water from sponge block before wet sanding. Clean sponge as often as required to remove joint compound dust. Apply third coat, feathering 2” beyond second coat. Let dry and smooth lightly as required 150 Fine/Medium Grit drywall sanding sponge blook for wet sanding. Soak sanding sponge block in a bucket of water and squeeze out excessive water from sponge block before wet sanding. Clean sponge as often as required to remove joint compound dust. Finish fastener heads, corner beads, and inside corners with only two (2) coats of joint compound, feathered out onto panel faces and finished to a smooth surface by “wet sanding.” After wet sanding each joint compound coat, remove any residual dust from the panel surface using the “yellow” side of a damp sponge against the panel.

G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:

1. Level 4: At all interior locations.

a. Primer and its application to surfaces are specified in Section 09 91 13 "Interior Painting."

3.2 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 09 29 00

SECTION 09 51 23 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical tiles.
2. Metal suspension system.
3. Accessories.
4. Metal edge moldings and trim.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

C. Coordination Drawings: Reflected ceiling plans, drawn to scale, and coordinated with each other, using input from installers of the items involved.

D. Product test reports.

E. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class A in accordance with ASTM E1264.
2. Smoke-Developed Index: 50 or less.

2.2 ACOUSTICAL TILES

A. Manufacturers:
1. Armstrong World Industries
2. USG Corporation

3. Rockfon (Part of the ROCKWOOL Group)

B. Acoustical Tile Standard: Manufacturer's standard tiles of configuration indicated that comply with ASTM E1264.

C. Classification: Class B

D. Color: As selected from manufacturer's full range.

E. Light Reflectance (LR): .85 or higher

F. Ceiling Attenuation Class (CAC): 35 or higher

G. Edge/Joint Detail: To match existing adjacent ceiling tiles.

H. Thickness: 5/8 inch or to match existing adjacent tiles

I. Modular Size: As indicated on Drawings.

2.3 METAL SUSPENSION SYSTEM

A. Manufacturers:
1. Armstrong World Industries
2. USG Corporation
3. Rockfon (Part of the ROCKWOOL Group)

B. Metal Suspension-System Standard: Manufacturer's standard, direct-hung, fully concealed, metal suspension system that complies with applicable requirements in ASTM C635/C635M.

C. Direct-Hung, Double-Web Suspension System: Main and cross runners roll formed from and capped with cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 (Z90) coating designation.

1. Structural Classification: Intermediate-duty system.
2. Access: Upward and side pivoted, with initial access openings of size indicated below and located throughout ceiling within each module formed by main and cross runners, with additional access available by progressively removing remaining acoustical tiles.

a. Initial Access Opening: In each module, As indicated on Drawings.

2.4 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

B. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical tiles in-place during a seismic event.

2.5 METAL EDGE MOLDINGS AND TRIM

A. Manufacturers:
   1. Armstrong World Industries
   2. USG Corporation
   3. Rockfon (Part of the ROCKWOOL Group)

B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations complying with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for of suspension-system runners.

PART 3 - EXECUTION

3.1 PREPARATION

A. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders unless otherwise indicated.

B. Layout openings for penetrations centered on the penetrating items.

3.2 INSTALLATION OF SUSPENDED ACOUSTICAL TILE CEILINGS

A. Install suspended acoustical tile ceilings in accordance with ASTM C636/C636M, seismic design requirements, and manufacturer's written instructions.

B. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical tiles.
   1. Do not use exposed fasteners, including pop rivets, on moldings and trim.

C. Arrange directionally patterned acoustical tiles as indicated on reflected ceiling plans.

END OF SECTION 09 51 23 – ACOUSTICAL TILE CEILINGS

SECTION 09 90 00 - PAINTING

PART 1 GENERAL

1.01 **DESCRIPTION**

A. Scope of Work:

The work of this section includes all labor, material, plant, tools, equipment, trucking, insurance and all related items to furnish and install all work of this section as shown by the drawings and specifications.

B. The following items are specifically included without limiting the generality implied by these specifications:

1. The following specifications cover the complete painting and finishing of all new AND/OR EXISTING surfaces except as otherwise specified:

   a. Where painting is called for, three coats of finish are required over all newly patched areas. Adjacent existing work where finish is in good condition shall require two coats.

2. The contractor shall be responsible for inspecting the work of others prior to the application of any paint or finishing materials. If any surface to be finished cannot be put in proper condition for finishing by customary cleaning, sanding, or puttying operations, the Contractor shall immediately notify the Architect in writing; or assume responsibility for and rectify any unsatisfactory finish resulting.
3. The contractor shall not only protect his work at all time, but shall also protect all adjacent work and materials by suitably covering or other method during progress of work. Upon completion of the work, he shall remove all paint and varnish spots from the floors, glass and other surfaces. He shall remove from the premises all rubbish and accumulated materials of whatever nature not caused by other trades and shall leave his part of the work in clean, orderly and acceptable condition.
4. The contractor shall examine the specifications for the various other trades and shall thoroughly familiarize himself with all their provisions regarding their painting. All surfaces that are left unfinished by the requirements of other specifications shall be painted or finished as part of this contract in areas scheduled to be painted.

C. Description of Work:

1. The painting and finishing of all exposed surfaces noted on drawings.

   a. All work shall be done with coatings that are “OTC-Compliant” (Ozone Transportation Commission).
   b. Existing materials as indicated on the drawings.

1.02 **QUALITY ASSURANCE**

A. Acceptable Manufacturers: Except as otherwise noted, products specified are those of:

1. Benjamin Moore.
2. Pratt & Lambert.
3. Sherwin Williams.

B. Quality Control

1. All materials used on the work shall be exactly as hereinafter specified in brand and quality (only "First Line" or "Best Grade" products as listed in a published price list and regularly produced by the approved paint manufacturer will be permitted on the project site.) No claim by the painting sub-Contractor as to the unsuitability or unavailability of any material specified, or his unwillingness to use same, or inability to produce first class-work with same, will be entertained unless such claims are made in writing and submitted with the bid of the Prime Contractor.
2. Materials used for coating systems for each type surface shall be the product of a single manufacturer.
3. All materials shall be used only as specified by the manufacturer's direction of a single manufacturer.
4. All colors and finishes shall be selected and approved by the Architect. The number of colors to be used on the project shall be determined by the Architect. Panels for finish and color shall be prepared by the painting sub-Contractor in advance, with the materials as specified, for the approval of the Architect.
5. Applicator Qualifications: Application of at least 10,000 square feet of specified materials within last three years. The workmanship shall be of the very best. Only skilled mechanics shall be employed.

    a. The Prime Contractor shall, through personal supervision or supervision of a competent superintendent, insure that all work is proceeding properly and is being carried out in accordance with the letter and intent of these specifications.
    b. All unnecessary delays shall be avoided and a sufficient force of skilled workmen shall be employed on this work at all times to expedite its early completion.

1.03 SUBMITTALS

A. Product Data: Manufacturer's product literature. Include a statement as to the percentage of solids by volume. In addition to actual material data, submit material for manufacturer's directions and recommendations as to environmental conditions, surface preparation, priming, mixing, reduction, spreading rate, application and storage.

B. Samples: Submit samples as requested for color selection.

C. Maintenance Materials:

1. Painting contractor shall leave at the job and obtain a receipt for one (1) full quart sealed can of each type and color of finish coat of paint and stain used. Properly identify each can with labels and/or color patches on outside of can, as well as locations where contents were used. Submit copy of receipt to Architect's office.

D. The painting sub-Contractor shall furnish in triplicate a written affidavit that the materials used in executing the painting sub-contract meet in all respects the "First Line" or "Best Grade" quality specified.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All paints, varnishes, enamels, lacquers, stains, paste fillers, and similar materials must be delivered in the original containers, with the seals unbroken and labels intact.

B. Materials used on the job shall be stored in a single place designated by the Owner's representative. Such storage place shall be kept neat and clean and all damage thereto or its surroundings shall be made good. Any soiled or used rags, waste, etc., must be removed from the building at the close of each day's work and every precaution taken to avoid the danger of fire. Containers are to be kept closed when not in use.

1.05 **ENVIRONMENTAL REQUIREMENTS**

A. Apply exterior coatings only under the following prevailing conditions.

1. Air and surface temperatures are not below 40F or above 120F.
2. Relative humidity is not above 85 percent and surface temperature is at least 5F above dew point.
3. Wind velocity is under 20 mph.

B. Apply interior coating utilizing continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45F for 24-hours before, during and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.

C. Minimum Application Temperature for Varnish and Polyurethane Finishes: 65F for interior, unless required otherwise by manufacturer's instructions.

D. Provide lighting level of 50ft. candles measured mid-height at substrate surface.

E. If Lead is present in existing paint systems Reference OSHA 29 CFR 1926-62 “Employee Construction Workers Exposed to Lead”.

1.06 **JOB CONDITIONS**

A. The painting contractor shall not only protect his work at all time, but shall also protect all the adjacent work and materials by suitably covering or other method during progress of his work. Upon completion of the work, he shall remove all paint and varnish spots from the floor, glass surfaces, etc.

PART 2 PRODUCTS

2.01 **COLORS**

A. Colors: Will be selected by the Architect prior to commencement of the painting operation from the manufacturer's standard color charts.

2.02 **PAINT**

A. Paint: See Paint Systems 3.08 for typical finish types. All coatings shall be “OTC-Compliant” (Ozone Transportation Commission).

2.03 **MISCELLANEOUS MATERIALS**

A. Turpentine: FS-TT-T-801.

B. Mineral Spirits: FS-TT-T-291.

PART 3 EXECUTION

3.01 INSPECTION

A. The contractor shall be responsible for inspecting the work of others prior to the application of any paint or finishing materials. Floors and entire spaces where painting is to commence shall be free of dust and debris, vacuumed and floor wet mopped by the general contractor. If any surfaces to be finished cannot be put in proper condition for finishing by customary cleaning, sanding and puttying operations, the painting contractor shall immediately notify the general contractor and/or Architect, in writing, or assume responsibility for and rectify any unsatisfactory finish results.

B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

A. The contractor shall review color schedules for rooms before applying any paint or finish. All priming coats and undercoats shall be tinted to the approximate shade of the final coat to assure uniformity of the color in the finish.

B. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.

C. Correct minor defects and clean surfaces which affect work of the Section.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

3.03 PROTECTION

A. Protect elements surrounding the work of this Section from damage or disfiguration.

B. Repair damage to other surfaces caused by work of the Section.

C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.

D. Remove empty paint containers from site.

3.04 APPLICATION

A. Apply products in accordance with manufacturer's instructions, unless otherwise specified. Apply under adequate illumination, evenly spread and smoothly flowed on without runs or sags.

C. Do not apply finishes to surfaces that are not dry.

D. Apply each coat uniformly at the minimum wet film rate furnished by the manufacturer of paint, stain or coating.

E. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

F. Sand lightly between coats to achieve required finish.

G. Allow applied coat to thoroughly dry before next coat is applied.

H. Final coat of paint or coating must have visual evidence of solid hiding and uniform appearance. Stain shall be applied uniformly.

I. Make edges of paint, stain or coating adjoining other materials or colors sharp and clean with no overlapping.

3.05 **CLEANING AND TOUCH-UP**

A. As Work proceeds, promptly remove paint where spilled, splashed or spattered.

B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

D. Spot painting to correct soiled or damaged paint surfaces will be allowed only when touch up spot is blended into surrounding finish and is invisible to normal viewing. Otherwise, re-coat entire section to corners or visible stopping point. Touch up should be accomplished by same method used in applying the original coating: when sprayed, touch up with spray; if brushed, use a brush for touch up; and if rolled, use same texture roller cover as used on the original painting.

3.06 **SCHEDULE**

Note: MANUFACTURER'S GIVEN ARE FOR QUALITY PURPOSES ONLY, MATCH MANUFACTURER USED BY THE OWNER.

A. Metal Finish (Iron, Steel, Ferrous Metal)

1 coat primer	Benjamin-Moore:	Super Spec HPD.T.M. Acrylic Semi-Gloss #P29
	Pratt & Lambert:	Tech-gard Acrylic,Pro-Hide Gold Exterior Latex Semi-Gloss
	Sherwin Williams:	S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series
2 coats	Benjamin-Moore:	Super Spec Latex House & Trim Paint #170
	Pratt & Lambert:	Tech-gard Acrylic,Pro-Hide Gold Exterior Latex Semi-Gloss
	Sherwin Williams:	S-W Metalatex Semi-Gloss Coating, B42 Series

B. Gypsum Wall Board and Plaster

1 coat primer	Benjamin-Moore:	Ben Interior Latex Primer #624.
	Pratt & Lambert:	Pro-Hide Gold Interior Latex Primer;
	Sherwin Williams:	S-W ProMar 200 Latex Primer, B28W8200
2 coats	Benjamin-Moore:	Super Spec Latex Semi - Gloss Enamel #276 (FINISH GIVEN FOR QUALITY ONLY, MATCH EXISTING FINISH)
	Pratt & Lambert:	Pro-Hide Gold Interior Latex Semi-Gloss (FINISH GIVEN FOR QUALITY ONLY, MATCH EXISTING FINISH)
	Sherwin Williams:	S-W ProMar 200 Latex Semi-Gloss, B31W2200 Series (FINISH GIVEN FOR QUALITY ONLY, MATCH EXISTING FINISH)

SYSTEMS NOTES:

1. On previously painted surfaces or factory primed surfaces, the first coat (prime coat) may be eliminated. All bare or patched areas must be spot primed.
2. Paint Systems given for quality purposes only. Provide paint type compatible with existing finishes, match existing sheen of adjacent areas.

END OF SECTION 09 90 00 - PAINTING

SECTION 10 20 00 - LOUVERS

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work:

The work of this section includes all labor, materials, plant, tools, equipment, trucking, insurance and all related and incidental items to furnish and install all work of this section as shown by the drawings and specification.

1. Provide louvers in walls where indicated on the drawings.

1.02 QUALITY ASSURANCE

A. Acceptable Louver Manufacturer: The products specified are those of “Ruskin”. Equal products by “Construction Specialties” and “Architectural Louver”, Cincinnati, Ohio” will be considered.

1.03 SUBMITTALS

A. Manufacturer's literature.

B. Shop Drawings

1. Indicate layout, gauges, sections, and details controlling the natural expansion and contraction of the material.

C. Samples of physical finishes shall be submitted to the Architect for selection of color and approval of finish.

PART 2 PRODUCTS

2.01 **LOUVER:** Stationary louver "Ruskin model ELF445DXH (BASIS OF DESIGN), 4" deep –with bird screen and insect screen.

A. Construction:

1. Blade: .125” thick Type 6063-T5 Extruded Aluminum.
2. Frame: concealed, 6063-T5 Extruded Aluminum.
3. Finish: All material shall receive a 2-coat Kynar 70% PVDF painted finish. Color to be chosen by Architect from manufacturer’s standard palette.
4. Size shall be as indicated on the drawings. All louvers shall be supplied with sills and proper anchorages as required or approved.
5. Provide bird screen and insect screen.

B. Or equivalent products by Architectural Louvers Co., Cincinnati, OH or Industrial Louvers, Inc., Delano, MN.

PART 3 EXECUTION

A. Install plumb and true to opening. Caulk all four sides interior and exterior.

B. Clean free of fingerprints and sealants.

C. Back paint frame with bituminous coating.

END OF SECTION 10 20 00 - LOUVERS

SECTION 21 05 29 - HANGERS AND SUPPORTS FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pipe hangers and supports for fire-suppression piping - metal.

2. Fastener systems.

1.02 ACTION SUBMITTALS

A. Product Data:

1. For each type of product.

1.03 QUALITY ASSURANCE

A. Structural-Steel Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

B. Pipe Welding Qualifications: Qualify procedures and operators in accordance with 2021 ASME Boiler and Pressure Vessel Code, Section IX.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Structural Performance: Hangers and supports for fire-suppression piping and equipment are to withstand the effects of gravity loads and stresses within limits and under conditions indicated in accordance with ASCE/SEI 7.

B. NFPA Compliance: Comply with NFPA 13.

C. UL Compliance: Comply with UL 203.

2.02 PIPE HANGERS AND SUPPORTS FOR FIRE-SUPPRESSION PIPING - METAL

A. Pipe Hangers and Supports for Fire-Suppression Piping - Carbon Steel:

1. Description: Factory-fabricated components, NFPA approved, UL listed, or FM Global approved for fire-suppression piping support.

2. Galvanized Metallic Coatings: Pregalvanized or hot-dip galvanized.

3. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

2.03 **FASTENER SYSTEMS**

A. Fastener System - NFPA/UL/FM Mechanical-Expansion Anchors: NFPA-approved, UL-listed, or FM Global-approved, insert-wedge-type anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Indoor Applications: Zinc coated or Stainless.

2.04 **MATERIALS**

A. Aluminum: ASTM B221.

B. Carbon Steel: ASTM A1011/A1011M.

C. Structural Steel: ASTM A36/A36M, carbon-steel plates, shapes, and bars; black and galvanized.

D. Stainless Steel: ASTM A240/A240M.

E. Grout: ASTM C1107/C1107M, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout, suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.

2. Design Mix: 5000 psi, 28-day compressive strength.

PART 3 EXECUTION

3.01 **APPLICATION**

A. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation, for penetrations through fire-rated walls, ceilings, and assemblies.

B. Strength of Support Assemblies: Where not indicated, select sizes of components, so strength will be adequate to carry static loads within specified loading limits. Minimum static design load used for strength determination is to comply with NFPA 13 requirements, minimum 5 times the water-filled weight of piping and supported components plus 250 lb.

3.02 **INSTALLATION OF HANGERS AND SUPPORTS**

A. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, permit freedom of movement between pipe anchors, and facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

B. Install lateral bracing with pipe hangers and supports to prevent swaying.

C. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Coordinate location of concrete inserts before concrete is placed.

D. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

E. Pipe Slopes: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

F. Metal Pipe-Hanger Installation: Comply with installation requirements of approvals and listings. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

G. Fastener System Installation:

1. Install mechanical-expansion anchors in concrete, after concrete is placed and completely cured. Install fasteners in accordance with manufacturer's written instructions. Install in accordance with approvals and listings.

H. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

3.03 METAL FABRICATIONS

A. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

B. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. Finish welds at exposed connections, so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.04 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.05 PAINTING

A. Touchup:

1. Clean field welds and abraded, shop-painted areas. Paint exposed areas immediately after erecting hangers and supports. Use same materials as those used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

a. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas, and apply galvanizing-repair paint to comply with ASTM A780/A780M.

3.06 **HANGER AND SUPPORT SCHEDULE**

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with NFPA requirements for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finishes.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports and attachments for general service applications.

F. Horizontal-Piping Hangers and Supports: Comply with NFPA requirements. Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.

2. Steel Pipe Clamps (MSS Type 4): For suspension of NPS 1/2 to NPS 24 if little or no insulation is required.

3. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.

4. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 8.

5. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3.

6. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.

G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.

2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.

H. Hanger-Rod Attachments: Comply with NFPA requirements.

I. Building Attachments: Comply with NFPA requirements. Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable-Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.

2. C-Clamps (MSS Type 23): For structural shapes.

3. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.

J. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION 21 05 29 – HANGERS AND SUPPORTS FOR FIRE SUPRESSION PIPING AND EQUIPMENT

SECTION 21 13 13 - WET-PIPE SPRINKLER SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Steel pipe and fittings.

2. Sprinklers.

1.02 DEFINITIONS

A. Standard-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure of 175-psig maximum.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and NICET certified technician.

B. Field Test Reports:

1. Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping."

C. Field quality-control reports.

1.05 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wet-pipe sprinkler systems and specialties to include in emergency, operation, and maintenance manuals.

1.06 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Sprinkler Cabinets: Finished, wall-mounted, steel cabinet with hinged cover, and with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler used on Project.

1.07 **QUALITY ASSURANCE**

A. Installer Qualifications:

1. Installer's responsibilities include designing, fabricating, and installing sprinkler systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.

a. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by NICET Level II-certified technician, "Water-Based Systems Layout."

1.08 **FIELD CONDITIONS**

A. Interruption of Existing Sprinkler Service: Do not interrupt sprinkler service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary sprinkler service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of sprinkler service.

2. Do not proceed with interruption of sprinkler service without Owner's written permission.

PART 2 PRODUCTS

2.01 **PERFORMANCE REQUIREMENTS**

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Sprinkler system equipment, specialties, accessories, installation, and testing to comply with NFPA 13.

C. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

D. Obtain documented approval of sprinkler system design from authorities having jurisdiction.

2.02 **STEEL PIPE AND FITTINGS**

A. Standard-Weight Steel Pipe: Black-steel pipe, ASTM A53/A53M, Type E, Grade B. Pipe ends may be factory or field formed to match joining method.

B. Steel Pipe Nipples: Black steel, ASTM A733, made of ASTM A53/A53M, standard-weight, seamless steel pipe with threaded ends.

C. Steel Couplings: Galvanized and uncoated steel, ASTM A865/A865M, threaded.

D. Gray-Iron Threaded Fittings: Galvanized and uncoated gray-iron threaded fittings, ASME B16.4, Class 125, standard pattern.

E. Malleable- or Ductile-Iron Unions: UL 860.

F. Cast-Iron Flanges: ASME 16.1, Class 125.

G. Steel Welding Fittings: ASTM A234/A234M and ASME B16.9.

1. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.03 SPRINKLER PIPING SPECIALTIES

A. Adjustable Drop Nipples:

1. Standard: UL 1474.

2. Pressure Rating: 250-psig minimum.

3. Body Material: Steel pipe with EPDM-rubber O-ring seals.

4. Size: Same as connected piping.

5. Length: Adjustable.

6. Inlet and Outlet: Threaded.

B. Flexible Sprinkler Hose Fittings:

1. Standard: UL 1474.

2. Type: Flexible hose for connection to sprinkler, and with bracket for connection to ceiling grid.

3. Pressure Rating: 175-psig minimum.

4. Size: Same as connected piping, for sprinkler.

2.04 SPRINKLERS

A. Manufacturer: Subject to compliance with requirements, provide products by one of the following

1. Reliable Automatic Sprinkler Co., Inc.
2. Tyco Fire Protection Products
3. Viking Group Inc.
4. Victaulic (Victaulic Group)

B. Listed in UL's "Fire Protection Equipment Directory" or FM Global's "Approval Guide."

C. Pressure Rating for Automatic Sprinklers: 175-psig minimum.

D. Automatic Sprinklers with Heat-Responsive Element:

1. Early-Suppression, Fast-Response Applications: UL 1767.

2. Nonresidential Applications: UL 199.

3. Characteristics: Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.

E. Sprinkler Finishes: Chrome plated and bronze.

F. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.

1. Ceiling Mounting: Chrome-plated steel, one piece, flat.

2. Upright: Chrome-plated steel, one piece, flat.

3. Sidewall Mounting: Chrome-plated steel, one piece, flat.

G. Sprinkler Guards:

1. Standard: UL 199.

2. Type: Wire cage with fastening device for attaching to sprinkler.

PART 3 EXECUTION

3.01 PREPARATION

A. Perform fire-hydrant flow test according to NFPA 13 and NFPA 291. Use results for system design calculations required in "Quality Assurance" Article.

B. Report test results promptly and in writing.

3.02 INSTALLATION OF PIPING

A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated on approved working plans.

1. Deviations from approved working plans for piping require written approval from engineer or record. File written approval with Architect before deviating from approved working plans.

2. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies.

B. Piping Standard: Comply with NFPA 13 requirements for installation of sprinkler piping.

C. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

D. Install sprinkler piping with drains for complete system drainage.

E. Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.

F. Fill sprinkler system piping with water.

3.03 **JOINT CONSTRUCTION**

A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.

2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

E. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.04 **INSTALLATION OF SPRINKLERS**

A. Install sprinklers in suspended ceilings in center of acoustical ceiling panels.

B. Install sprinklers into flexible, sprinkler hose fittings, and install hose into bracket on ceiling grid.

3.05 **IDENTIFICATION**

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

B. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.06 **FIELD QUALITY CONTROL**

A. Perform the following tests and inspections:

1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.

2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.

4. Energize circuits to existing electrical equipment and devices.

5. Coordinate with fire-alarm tests. Operate as required.

6. Verify that equipment hose threads are same as local fire department equipment.

B. Sprinkler piping system will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.07 **CLEANING**

A. Clean dirt and debris from sprinklers.

B. Only sprinklers with their original factory finish are acceptable. Remove and replace any sprinklers that are painted or have any other finish than their original factory finish.

3.08 **PIPING SCHEDULE**

A. Sprinkler specialty fittings may be used, downstream of control valves, instead of specified fittings.

B. Standard-Pressure, Wet-Pipe Sprinkler System, NPS 2 and Smaller, to Be One of the Following:

1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.

3.09 **SPRINKLER SCHEDULE**

A. Use sprinkler types in subparagraphs below for the following applications:

1. Rooms without Ceilings: Upright sprinklers.

2. Rooms with Suspended Ceilings: Pendent, recessed, flush, and concealed sprinklers as indicated.

3. Wall Mounting: Sidewall sprinklers.

B. Provide sprinkler types in subparagraphs below with finishes indicated.

1. Concealed Sprinklers: Rough brass, with factory-painted white cover plate.

2. Flush Sprinklers: Bright chrome, with painted white escutcheon.

3. Recessed Sprinklers: Bright chrome, with bright chrome escutcheon.

4. Upright, Pendent, and Sidewall Sprinklers: Chrome plated in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

END OF SECTION 21 13 13 – WET-PIPE SPRINKLER SYSTEMS

SECTION 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pipe labels.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 PRODUCTS

2.01 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color coded, with lettering indicating service and showing flow direction in accordance with ASME A13.1.

B. Letter and Background Color: As indicated for specific application under Part 3.

C. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full 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:

1. Pipe size.

2. Flow-Direction Arrows: Include flow-direction arrows on distribution piping. Arrows may be either integral with label or applied separately.

3. Lettering Size: Size letters in accordance with ASME A13.1 for piping.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean piping and equipment surfaces of incompatible primers, paints, and encapsulants, as well as dirt, oil, grease, release agents, and other substances that could impair bond of identification devices.

3.02 **INSTALLATION, GENERAL 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.

D. Locate identifying devices so that they are readily visible from the point of normal approach.

3.03 **INSTALLATION OF PIPE LABELS**

A. Install pipe labels showing service and flow direction with permanent adhesive on pipes.

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. Within 3 ft. of each valve and control device.

2. At access doors, manholes, and similar access points that permit view of concealed piping.

3. Within 3 ft. of equipment items and other points of origination and termination.

4. Spaced at maximum intervals of 25 ft. along each run. Reduce intervals to 10 ft. in areas of congested piping and equipment.

C. Do not apply plastic pipe labels or plastic tapes directly to bare pipes conveying fluids at temperatures of 125 deg F or higher. Where these pipes are to remain uninsulated, use a short section of insulation or use stenciled labels.

D. Flow-Direction Flow Arrows: Use arrows, in compliance with ASME A13.1, to indicate direction of flow in pipes, including pipes where flow is allowed in both directions.

E. Pipe-Label Color Schedule:

1. Storm Drainage Piping: White letters on a black background.

END OF SECTION 22 05 53 – IDENTIFICATION FOR PLUMBING AND PIPING EQUIPMENT

SECTION 220719 - PLUMBING PIPING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes insulating the following plumbing piping services:

1. Storm-water piping exposed to freezing conditions.
2. Roof drains and rainwater leaders.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory and field applied if any).

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at pipe expansion joints for each type of insulation.
3. Detail insulation application at elbows, fittings, and specialties for each type of insulation.
4. Detail application of field-applied jackets.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

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.

1.4 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.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation system materials are to be delivered to the Project site in unopened containers. The packaging is to include name of the manufacturer, fabricator, type, description, and size, as well as ASTM standard designation and maximum use temperature.

1.6 COORDINATION

A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Section 220529 "Hangers and Supports for Plumbing Piping and Equipment."

B. 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.

1.7 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.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products in accordance with ASTM E84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation, jacket materials, adhesive, mastic, tapes, and cement material containers with appropriate markings of applicable testing agency.

1. All Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2.2 INSULATION MATERIALS

A. Comply with requirements in "Piping Insulation Schedule, General," "Indoor Piping Insulation Schedule," "Outdoor, Aboveground Piping Insulation Schedule," and "Outdoor, Underground Piping Insulation Schedule" articles for where insulating materials are applied.

B. Products do not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come into contact with stainless steel have a leachable chloride content of less than 50 ppm when tested in accordance with ASTM C871.

D. Glass-Fiber, Preformed Pipe: Glass fibers bonded with a thermosetting resin; suitable for maximum use temperature up to 850 deg F in accordance with ASTM C411. Comply with ASTM C547.

1. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

   a. Johns Manville
   b. Owens Corning
   c. Knauf Insulation
   d. Manson Insulation

2. Preformed Pipe Insulation: Type I, Grade A, with factory-applied ASJ-SSL.
3. Fabricated shapes in accordance with ASTM C450 and ASTM C585.
4. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

2.3 INSULATING CEMENTS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Johns Manville
2. Owens Corning
3. Ramco Insulation
4. The Strong Company

B. Glass-Fiber Insulating Cement: Comply with ASTM C195.

C. Glass-Fiber Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C449.

2.4 ADHESIVES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Johns Manville
2. Owens Corning
3. Proto Corporation
4. Speedline Corporation

B. Materials are compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

C. Glass-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

D. PVC Jacket Adhesive: Compatible with PVC jacket.

2.5 MASTICS AND COATINGS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. H.B. Fuller Company
2. Stego Industries
3. Meridian Adhesives Group
4. Sika Corporation

B. Materials are compatible with insulation materials, jackets, and substrates.

C. Vapor-Retarder Mastic, Water Based: Suitable for indoor use on below-ambient services.

1. Water-Vapor Permeance: Comply with ASTM E96/E96M or ASTM F1249.

2. Service Temperature Range: Minus 20 to plus 180 deg F.
3. Comply with MIL-PRF-19565C, Type II, for permeance requirements.
4. Color: White.

2.6 LAGGING ADHESIVES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. H.B. Fuller Company
2. Foster
3. GLT Products

B. Adhesives comply with MIL-A-3316C, Class I, Grade A, and are compatible with insulation materials, jackets, and substrates.

1. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over pipe insulation.
2. Service Temperature Range: 0 to plus 180 deg F.
3. Color: White.

2.7 SEALANTS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Johns Manville
2. Proto Corporation
3. Speedline

B. Materials are as recommended by the insulation manufacturer and are compatible with insulation materials, jackets, and substrates.

C. Joint Sealants:

1. Permanently flexible, elastomeric sealant.
2. Service Temperature Range: Minus 58 to plus 176 deg F.
3. Color: White or gray.

D. ASJ Flashing Sealants and PVC Jacket Flashing Sealants:

1. Fire- and water-resistant, flexible, elastomeric sealant.
2. Service Temperature Range: Minus 40 to plus 250 deg F.
3. Color: White.

2.8 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-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C1136, Type I.

2.9 FIELD-APPLIED JACKETS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Johns Manville
2. Proto Corporation
3. PIC Plastics
4. Speedline

B. Field-applied jackets comply with ASTM C1136, Type I, unless otherwise indicated.

C. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.

1. Adhesive: As recommended by jacket material manufacturer.
2. Color: White.
3. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.

    a. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.

2.10 TAPES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M
2. K-Flex
3. Zeston
4. Proto

B. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C1136.

1. Width: 3 inches.
2. Thickness: 11.5 mils.
3. Adhesion: 90 ounces force/inch in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch in width.
6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.

1. Width: 2 inches.

2. Thickness: 6 mils.
3. Adhesion: 64 ounces force/inch in width.
4. Elongation: 500 percent.
5. Tensile Strength: 18 lbf/inch in width.

2.11 SECUREMENTS

A. Bands:
1. Stainless Steel: ASTM A240/A240M, Type 304 or Type 316; 0.015 inch thick, 1/2 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.

2.12 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.

2.13 PREPARATION

A. Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

B. Coordinate insulation installation with the tradesman 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.

2.14 GENERAL INSTALLATION REQUIREMENTS

A. 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.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and of thicknesses required for each item of pipe 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, compress, or otherwise damage insulation or jacket.

D. Install insulation with longitudinal seams at top and bottom (12 o'clock and 6 o'clock positions) of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during storage, application, and finishing. Replace insulation materials that get wet during storage or in the installation process before being properly covered and sealed in accordance with Contract Documents.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. 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 attached to structure with vapor-barrier mastic.
3. Install insert materials and 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.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth, but not to the extent of creating wrinkles or areas of compression in the insulation.
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. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward-clinching staples along edge at 4 inches o.c.

    a. For below-ambient services, apply vapor-barrier mastic over staples.

4. Cover joints and seams with tape, in accordance with 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 pipe flanges and fittings.

M. Cut insulation in a manner to avoid compressing insulation.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. 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 in similar fashion to butt joints.

P. 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. Cleanouts.

2.15 PENETRATIONS

A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

B. 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 Section 078413 "Penetration Firestopping" for firestopping and fire-resistive joint sealers.

C. Insulation Installation at Floor Penetrations:

1. Pipe: Install insulation continuously through floor penetrations.
2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

2.16 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 below.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, Mechanical Couplings, and Unions:

1. Install insulation over fittings, valves, strainers, flanges, mechanical couplings, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.
2. Insulate pipe elbows using preformed fitting insulation or mitered or routed fittings made from same material and density as that of adjacent pipe insulation. Each piece is 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 flanges, mechanical couplings, and unions, using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than 2 times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Stencil or label the outside insulation jacket of each union with the word "union" matching size and color of pipe labels.
4. 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.

5. 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.

2.17 INSTALLATION OF GLASS-FIBER INSULATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands, and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
3. For insulation with jackets on above-ambient surfaces, secure laps with outward-clinched staples at 6 inches o.c.
4. For insulation with jackets on below-ambient surfaces, do not staple longitudinal tabs. Instead, secure tabs with additional adhesive, as recommended by insulation material manufacturer, and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Fittings and Elbows:

1. Install prefabricated sections of same material as that of straight segments of pipe insulation when available.
2. When prefabricated insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

2.18 INSTALLATION OF FIELD-APPLIED JACKETS

A. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints. 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.

2.19 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections: Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection is limited to three locations of straight pipe, and three locations of threaded fittings for each pipe service defined in the "Piping Insulation Schedule, General" Article.

C. All insulation applications will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

2.20 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. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

2.21 INDOOR PIPING INSULATION SCHEDULE

A. Stormwater and Roof Drain Bodies:

1. All Pipe Sizes: Insulation is the following:

a. Glass-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.

2.22 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Piping, Concealed:

1. None.

D. Piping, Exposed:

1. PVC: 30 mils thick.

END OF SECTION 220719

SECTION 22 14 14 - STORM DRAINAGE PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Hubless, cast-iron soil pipe and fittings.
2. Copper tube and fittings.
3. Specialty pipe fittings.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.03 INFORMATIONAL SUBMITTALS

A. Field Quality-Control Reports: Inspection reports signed by authorities having jurisdiction.

1.04 QUALITY ASSURANCE

A. Provide materials bearing label, stamp, or other markings of specified testing agency.

1.05 FIELD CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of storm drainage service.
2. Do not proceed with interruption of storm drainage service without Owner's written permission.

1.06 WARRANTY

A. Listed manufacturers to provide labeling and warranty of their respective products

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Components and installation are to be capable of withstanding the following minimum working pressure unless otherwise indicated:

1. Storm Drainage Piping: 10-foot head of water.

2.02 **PIPING MATERIALS**

A. Piping materials to bear label, stamp, or other markings of specified testing agency.

B. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.03 **HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS**

A. Pipe and Fittings:

1. Marked with CISPI collective trademark and NSF certification mark.

2. Standards: ASTM A888 and CISPI 301.

B. Heavy-Duty, Hubless-Piping Couplings:

1. Standard: ASTM C1277 or ASTM C1540.

2. Description: Stainless steel shield with stainless steel bands and tightening devices; and ASTM C564, rubber sleeve with integral, center pipe stop.

2.04 **COPPER TUBE AND FITTINGS**

A. Copper Tube:

1. Copper Type DWV Tube: ASTM B306, drainage tube, drawn temper.

B. Copper Fittings:

1. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.

C. Solder: ASTM B32, lead free with ASTM B813, water-flushable flux.

2.05 **SPECIALTY PIPE FITTINGS**

A. Transition Couplings:

1. General Requirements: Fitting or device for joining piping with small differences in ODs or of different materials. Include end connections of same size as and compatible with pipes to be joined.

2. Fitting-Type Transition Couplings: Manufactured piping coupling or specified-piping-system fitting.

3. Shielded, Nonpressure Transition Couplings:

a. Standard: ASTM C1460.

b. Description: Elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

c. End Connections: Same size as and compatible with pipes to be joined.

PART 3 EXECUTION

3.01 **INSTALLATION OF PIPING**

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems.

B. Install piping as indicated unless deviations from layout are approved on coordination drawings.

C. Install piping in concealed locations.

1. Piping installed in equipment rooms, service areas, and where indicated may be exposed.

D. 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.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

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. Make changes in direction for piping using appropriate branches, bends, and long-sweep bends.

1. Do not change direction of flow more than 90 degrees.

2. Use proper size of standard increasers and reducers if pipes of different sizes are connected.

a. Reducing size of drainage piping in direction of flow is prohibited.

K. Install piping at the following minimum slopes unless otherwise indicated.

1. Building Storm Drain: 1/4 inch per foot downward in direction of flow for piping NPS 3 and smaller; 1/8 inch per foot downward in direction of flow for piping NPS 4 and larger.

2. Horizontal Storm Drainage Piping: 1/4 inch per foot downward in direction of flow.

L. Install cast-iron soil piping in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Ch IV, "Installation of Cast Iron Soil Pipe and Fittings."

M. Install aboveground copper tubing in accordance with CDA's "Copper Tube Handbook."

N. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.02 JOINT CONSTRUCTION

A. Hubless, Cast-Iron Soil Piping Coupled Joints: Join in accordance with CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping coupling joints.

B. Threaded Joints: Thread pipe with tapered pipe threads in accordance with ASME B1.20.1.

1. Cut threads full and clean using sharp dies.

2. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

a. Apply appropriate tape or thread compound to external pipe threads unless dry-seal threading is specified.

b. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

c. Do not use pipe sections that have cracked or open welds.

C. Join copper tube and fittings with soldered joints in accordance with ASTM B828. Use ASTM B813, water-flushable, lead-free flux and ASTM B32, lead-free-alloy solder.

3.03 INSTALLATION OF SPECIALTY PIPE FITTINGS

A. Transition Couplings:

1. Install transition couplings at joints of piping with small differences in ODs.

2. In Drainage Piping: Shielded, nonpressure transition couplings.

B. Dielectric Fittings:

1. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

2. Dielectric Fittings for NPS 2 and Smaller: Use dielectric nipples.

3.04 INSTALLATION OF HANGERS AND SUPPORTS

A. Comply with requirements for hangers, supports, and anchor devices specified in Section 23 05 29 "Hangers and Supports for Plumbing Piping and Equipment."

1. Install carbon-steel pipe hangers for horizontal piping in noncorrosive environments.

2. Install carbon-steel pipe support clamps for vertical piping in noncorrosive environments.

3. Vertical Piping: MSS Type 8 or Type 42, clamps.

4. Install individual, straight, horizontal piping runs:

   a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.

   b. Longer Than 100 Feet (30 m): MSS Type 43, adjustable roller hangers.

   c. Longer Than 100 Feet (30 m) if Indicated: MSS Type 49, spring cushion rolls.

5. Multiple, Straight, Horizontal Piping Runs 100 Feet (30 m) or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.

6. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Install hangers for cast-iron soil piping with maximum horizontal spacing of 5 ft. Minimum rod diameters shall be 3/8-inch rod diameter for 1/2-inch to 4-inch pipe and 1/2-inch rod diameter for 5-inch to 8-inch pipe.

C. Install hangers for copper soil piping with maximum horizontal spacing of 6 ft for 1-1/4-inch NPS and smaller or maximum horizontal spacing of 10 ft for 1-1/2-inch NPS and larger. Minimum rod diameters shall be 3/8-inch rod diameter for 1/2-inch to 4-inch pipe and 1/2-inch rod diameter for 5-inch to 8-inch pipe.

D. Support horizontal piping and tubing within 12 inches of each fitting, valve, and coupling.

E. Support vertical cast-iron and copper piping to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent, but as a minimum at base and at each floor.

3.05 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect interior storm drainage piping to exterior storm drainage piping. Use transition fitting to join dissimilar piping materials.

C. Connect storm drainage piping to roof drains and storm drainage specialties.

D. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.

3.06 IDENTIFICATION

A. Identify exposed storm drainage piping.

B. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.07 **FIELD QUALITY CONTROL**

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in.

2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test storm drainage piping in accordance with procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired.

a. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

2. Leave uncovered and unconcealed new, altered, extended, or replaced storm drainage piping until it has been tested and approved.

a. Expose work that was covered or concealed before it was tested.

3. Test Procedure:

a. Test storm drainage piping on completion of roughing-in.

b. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water.

c. From 15 minutes before inspection starts until completion of inspection, water level must not drop.

d. Inspect joints for leaks.

4. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.

5. Prepare reports for tests and required corrective action.

3.08 **CLEANING**

A. Clean interior of piping. Remove dirt and debris as work progresses.

3.09 **PROTECTION**

A. Protect piping and drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

B. Place plugs in ends of uncompleted piping at end of day and when work stops.

C. Repair damage to adjacent materials caused by storm drainage piping installation.

3.10 **PIPING SCHEDULE**

A. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.

B. Aboveground storm drainage piping NPS 6 and smaller is to be any of the following:

1. Hubless, cast-iron soil pipe and fittings; CISPI, heavy-duty, hubless-piping couplings; and coupled joints.

2. Copper Type DWV tube, copper drainage fittings, and soldered joints.

3. Dissimilar Pipe-Material Couplings: Shielded, nonpressure transition couplings.

END OF SECTION 22 14 14 – STORM DRAINAGE PIPING

SECTION 22 14 23 - STORM DRAINAGE PIPING SPECIALTIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. General-purpose roof drains.

1.02 ACTION SUBMITTALS

A. Product Data:

1. General-purpose roof drains.

1.03 QUALITY ASSURANCE

A. Provide drainage piping specialties are to bear label, stamp, or other markings of specified testing agency.

PART 2 PRODUCTS

2.01 GENERAL-PURPOSE ROOF DRAINS

A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

1. Jay R Smith
2. Zurn
3. Watts
4. Josam

B. Cast-Iron Roof Drains:

1. Cast-Iron, Small-Sump, General-Purpose Roof Drains:

a. Standard: ASME A112.6.4.
b. Body Material: Cast iron.
c. Dimension of Body: Nominal 8-inch diameter.
d. Dome Material: Cast iron.
e. Combination flashing ring and gravel stop.
f. Outlet: Bottom; No-hub or Inside caulk.
g. Options:

1) Extension collars.
2) Underdeck clamp.
3) Expansion joint.
4) Sump receiver plate.
5) Wire Mesh: Stainless steel or brass over dome.
6) Vandal-proof dome.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install roof drains in accordance with roof membrane manufacturer's written installation instructions at low points of roof areas.

1. Install flashing collar or flange of roof drain to 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.

3.02 CONNECTIONS

A. Comply with requirements for piping specified in Section 221414 "Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

3.03 CLEANING

A. Clean piping specialties during installation and remove dirt and debris as work progresses.

3.04 PROTECTION

A. Protect piping specialties during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic and construction work.

B. Place plugs in ends of uncompleted piping at end of each day and when work stops.

END OF SECTION 22 14 23 – STORM DRAINAGE PIPING SPECIALTIES

SECTION 23 05 13 - COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 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.

1.03 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.

B. Comply with IEEE 841 for severe-duty motors.

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 controller 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. 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.

C. Severe-Duty Motors: Comply with IEEE 841, with 1.15 minimum service factor.

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 23 05 13 - COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

SECTION 23 05 29 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe hangers and supports - metal.
2. Fastener systems.

1.2 ACTION SUBMITTALS

A. Product Data:

1. For each type of product.

1.3 QUALITY ASSURANCE

A. Structural-Steel Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators in accordance with 2021 ASME Boiler and Pressure Vessel Code, Section IX.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Hangers and supports for HVAC piping and equipment are to withstand the effects of gravity loads and stresses within limits and under conditions indicated in accordance with ASCE/SEI 7.

2.2 PIPE HANGERS AND SUPPORTS - METAL

A. Pipe Hangers and Supports - Carbon Steel:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Galvanized Metallic Coatings: Pregalvanized, hot-dip galvanized, or electro-galvanized.
3. Hanger Rods: Continuous-thread rod, nuts, and washers made of carbon steel or stainless steel.

2.3 FASTENER SYSTEMS

A. Fastener System - Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities required for supported loads and building materials where used.

B. Fastener System - Mechanical-Expansion Anchors: Insert-wedge-type anchors for use in hardened portland cement concrete; with pull-out, tension, and shear capacities required for supported loads and building materials where used.

1. Indoor Applications: Zinc-plated or stainless steel.
2. Outdoor Applications: Stainless steel.

2.4 MATERIALS

A. Carbon Steel: ASTM A1011/A1011M.

B. Structural Steel: ASTM A36/A36M, carbon-steel plates, shapes, and bars; galvanized.

C. Stainless Steel: ASTM A240/A240M.

D. Threaded Rods: Continuously threaded. Zinc-plated or galvanized steel for indoor applications and stainless steel for outdoor applications. Mating nuts and washers of similar materials as rods.

PART 3 - EXECUTION

3.1 APPLICATION

A. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry static loads within specified loading limits. Minimum static design load used for strength determination is to include weight of supported components plus 200 lb.

3.2 INSTALLATION OF HANGERS AND SUPPORTS

A. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

B. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger. Coordinate location of concrete inserts before concrete is placed.

C. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

D. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

E. Insulated Piping:

1. Attach clamps and spacers to piping.

   a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
   b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
   c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields are to span an arc of 180 degrees.

4. Shield Dimensions for Pipe: Not less than the following:

   a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
   b. NPS 4: 12 inches long and 0.06 inch thick.
   c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
   d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.

5. Pipes NPS 8 and Larger: Include wood or reinforced calcium-silicate-insulation inserts of length at least as long as protective shield.

F. Metal Pipe-Hanger Installation: Comply with MSS SP-58. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

G. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

H. Fastener System Installation:

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick after concrete is placed and cured. Use installers that are licensed by powder-actuated tool manufacturer.
2. Install mechanical-expansion anchors after concrete is placed and completely cured.
3. Install fasteners in accordance with manufacturer's written instructions.
4. Install lag screw wood fasteners in accordance with manufacturer's written instructions.

I. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.

3.3 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.4 PAINTING

A. Touchup:

1. 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.
2. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780/A780M.

3.5 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with MSS SP-58 for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports and attachments for general service applications.

F. Use stainless steel pipe hangers and stainless steel attachments for exterior and hostile environment applications.

G. Use thermal-hanger shield inserts for insulated piping and tubing.

H. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.
2. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.
3. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
4. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8.
5. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
6. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
7. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
8. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 8.

9. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3.
10. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.
11. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.

I. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.

J. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.

K. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.
7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.

10. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
11. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

L. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.

2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

M. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION 23 05 29 – HANGARS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

SECTION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Equipment labels.

2. Pipe labels.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. 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. Plastic Labels for Equipment:

1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, with predrilled holes for attachment hardware.

2. Letter and Background Color: As indicated for specific application under Part 3.

3. Maximum Temperature: Able to withstand temperatures of up to 160 deg F.

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 of up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

6. Fasteners: Stainless steel rivets or self-tapping screws.

7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), and the Specification Section number and title where equipment is specified.

2.02 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color coded, with lettering indicating service and showing flow direction in accordance with ASME A13.1.

B. Letter and Background Color: As indicated for specific application under Part 3.

C. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full 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:

1. Pipe size.

2. Flow-Direction Arrows: Include flow-direction arrows on main distribution piping. Arrows may be either integral with label or applied separately.

3. Lettering Size: Size letters in accordance with ASME A13.1 for piping.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean piping and equipment surfaces of incompatible primers, paints, and encapsulants, as well as dirt, oil, grease, release agents, and other substances that could impair bond of identification devices.

3.02 INSTALLATION, GENERAL 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.

D. Locate identifying devices so that they are readily visible from the point of normal approach.

3.03 INSTALLATION OF EQUIPMENT LABELS

A. Permanently fasten labels on each item of mechanical equipment.

B. Sign and Label Colors:

1. White letters on an ANSI Z535.1 safety-blue background.

C. Locate equipment labels where accessible and visible.

3.04 INSTALLATION OF PIPE LABELS

A. Install pipe labels showing service and flow direction with permanent adhesive on pipes.

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. Within 3 ft. of each valve and control device.

2. At access doors, manholes, and similar access points that permit view of concealed piping.

3. Within 3 ft. of equipment items and other points of origination and termination.

4. Spaced at maximum intervals of 25 ft. along each run. Reduce intervals to 10 ft. in areas of congested piping, ductwork, and equipment.

C. Do not apply plastic pipe labels or plastic tapes directly to bare pipes conveying fluids at temperatures of 125 deg F or higher. Where these pipes are to remain uninsulated, use a short section of insulation or use stenciled labels.

D. Flow-Direction Arrows: Use arrows to indicate direction of flow in pipes, including pipes where flow is allowed in both directions.

E. Pipe-Label Color Schedule:

1. Condenser-Water Piping: White letters on an ANSI Z535.1 safety-green background.

2. Refrigerant Piping: White letters on an ANSI Z535.1 safety-blue background.

3. Condensate and Other Water: White letters on an ANSI Z535.1 safety-green background.

END OF SECTION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Testing, adjusting, and balancing of equipment.

2. Testing, adjusting, and balancing of existing HVAC systems and equipment.

1.03 DEFINITIONS

A. AABC: Associated Air Balance Council.

B. NEBB: National Environmental Balancing Bureau.

C. TAB: Testing, adjusting, and balancing.

D. TABB: Testing, Adjusting, and Balancing Bureau.

E. TAB Specialist: An independent entity meeting qualifications to perform TAB work.

F. TDH: Total dynamic head.

G. UFAD: Underfloor air distribution.

1.04 PREINSTALLATION MEETINGS

A. TAB Conference: Conduct a TAB conference at Project site after approval of the TAB strategies and procedures plan, to develop a mutual understanding of the details. Provide a minimum of 14 days' advance notice of scheduled meeting time and location.

1. Minimum Agenda Items:

a. The Contract Documents examination report.

b. The TAB plan.

c. Needs for coordination and cooperation of trades and subcontractors.

d. Proposed procedures for documentation and communication flow.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: Within 60 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 60 days of Contractor's Notice to Proceed, submit the Contract Documents review report, as specified in Part 3.

C. Strategies and Procedures Plan: Within 60 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.

1.06 **QUALITY ASSURANCE**

A. TAB Specialists Qualifications, Certified by AABC:

1. TAB Field Supervisor: Employee of the TAB specialist and certified by AABC.

2. TAB Technician: Employee of the TAB specialist and certified by AABC.

B. TAB Specialists Qualifications, Certified by NEBB or TABB:

1. TAB Field Supervisor: Employee of the TAB specialist and certified by NEBB or TABB.

2. TAB Technician: Employee of the TAB specialist and certified by NEBB or TABB.

C. Instrumentation Type, Quantity, Accuracy, and Calibration: Comply with requirements in ASHRAE 111, Section 4, "Instrumentation."

D. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.7.2.3 - "System Balancing."

E. Code and AHJ Compliance: TAB is required to comply with governing codes and requirements of authorities having jurisdiction.

1.07 **FIELD CONDITIONS**

A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

B. 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, gauge 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 ceiling plenums and underfloor air plenums used for HVAC to verify that they are properly separated from adjacent areas and sealed.

F. Examine equipment performance data, including fan and pump 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.

G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

H. Examine test reports specified in individual system and equipment Sections.

I. 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.

J. Examine operating safety interlocks and controls on HVAC equipment.

K. Examine control dampers for proper installation for their intended function of isolating, throttling, diverting, or mixing air flows.

L. 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. Ceilings are installed.

i. Windows and doors are installed.

j. Suitable access to balancing devices and equipment is provided.

2. Hydronics:

a. Verify leakage and pressure tests on water distribution systems have been satisfactorily completed.

b. Piping is complete with terminals installed.

c. Water treatment is complete.

d. Systems are flushed, filled, and air purged.

e. Strainers are pulled and cleaned.

f. Control valves are functioning in accordance with the sequence of operation.

g. Shutoff and balance valves have been verified to be 100 percent open.

h. Pumps are started and proper rotation is verified.

i. Pump gauge connections are installed directly at pump inlet and outlet flanges or in discharge and suction pipe prior to valves or strainers.

j. Variable-frequency controllers' startup is complete and safeties are verified.

k. 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 in accordance with the procedures contained in AABC's "National Standards for Total System Balance", ASHRAE 111, or NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.

B. Cut insulation, ducts, pipes, and equipment casings for installation of test probes to the minimum extent necessary for TAB procedures.

1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.

2. After testing and balancing, install test ports and duct access doors that comply with requirements in Section 233300 "Air Duct Accessories."

3. Where holes for probes are required in piping or hydronic equipment, install pressure and temperature test plugs to seal systems.

4. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish in accordance with Section 230713 "Duct Insulation," Section 230716 "HVAC Equipment Insulation," and Section 230719 "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.

3.04 TESTING, ADJUSTING, AND BALANCING OF HVAC EQUIPMENT

A. Test, adjust, and balance HVAC equipment indicated on Drawings, including, but not limited to, the following:

1. Motors.

2. Fans and ventilators.

3. Terminal units.

4. Condensing units.

5. Condensers.

6. Cooling towers.

7. Split-system air conditioners.

3.05 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' Record drawings duct layouts.

C. For variable-air-volume systems, develop a plan to simulate diversity.

D. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

E. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

G. Verify that motor starters are equipped with properly sized thermal protection.

H. Check dampers for proper position to achieve desired airflow path.

I. Check for airflow blockages.

J. Check condensate drains for proper connections and functioning.

K. Check for proper sealing of air-handling-unit components.

3.06 **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.

3.07 **PROCEDURES FOR AIR-COOLED CONDENSING UNITS**

A. Verify proper rotation of fan(s).

B. Measure and record entering- and leaving-air temperatures.

C. Measure and record entering and leaving refrigerant pressures.

D. Measure and record operating data of compressor(s), fan(s), and motors.

3.08 **PROCEDURES FOR TESTING, ADJUSTING, AND BALANCING EXISTING SYSTEMS**

A. Perform a preconstruction inspection of existing equipment that is to remain and be reused. Inspection shall be limited to only the equipment effected by the scope of this project. There is no need to test equipment which have not been touched or modified.

1. Measure and record the operating speed, airflow, and static pressure of each fan and equipment with fan(s).

2. Measure and record flows, temperatures, and pressures of each piece of equipment in each hydronic system. Compare the values to design or nameplate information, where information is available.

3. Measure motor voltage and amperage. Compare the values to motor nameplate information.

4. Check the refrigerant charge.

5. Check the condition of filters.

6. Check the condition of coils.

7. Check the operation of the drain pan and condensate-drain trap.

8. Check bearings and other lubricated parts for proper lubrication.

9. Report on the operating condition of the equipment and the results of the measurements taken. Report deficiencies.

B. TAB After Construction: Before performing testing and balancing of renovated existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment is clean and is in proper operating condition. Verify the following where they apply:

1. New filters are installed.

2. Coils are clean and fins combed.

3. Drain pans are clean.

4. Fans are clean.

5. Bearings and other parts are properly lubricated.

6. Deficiencies noted in the preconstruction report are corrected.

C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.

1. Compare the indicated airflow of the renovated work to the measured fan airflows, and determine the new fan speed and the face velocity of filters and coils.

2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.

3. If calculations increase or decrease the airflow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.

4. Balance each air outlet.

3.09 TOLERANCES

A. Set HVAC system's airflow rates and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent. If design value is less than 100 cfm, within 10 cfm.

B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

3.10 PROGRESS REPORTING

A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for system-balancing devices. Recommend changes and additions to system-balancing devices, to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance-measuring and -balancing devices.

B. Status Reports: Prepare monthly progress reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

3.11 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.

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 performance forms, including the following:

a. Settings for outdoor-, return-, and exhaust-air dampers.

b. Fan drive settings, including settings and percentage of maximum pitch diameter.

c. Other system operating conditions that affect performance.

16. Test conditions for pump performance forms, including the following:

a. Settings for pressure controller(s).

b. 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. Balancing stations.

4. Position of balancing devices.

E. 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 speed.

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 speed.

d. Discharge static pressure in inches wg.

e. Suction static pressure in inches wg.

F. Instrument Calibration Reports:

1. Report Data:

a. Instrument type and make.

b. Serial number.

c. Application.

d. Dates of use.

e. Dates of calibration.

3.12 VERIFICATION OF TAB REPORT

A. The TAB specialist's test and balance engineer shall conduct the inspection in the presence of Owner.

B. Owner shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to the lesser of 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 TAB shall be considered incomplete and shall be rejected.

E. If recheck measurements find the number of failed measurements noncompliant with requirements indicated, 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. All changes shall be tracked to show changes made to previous report.

2. If the second final inspection also fails, Owner may pursue others Contract options to complete TAB work.

F. Prepare test and inspection reports.

END OF SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

SECTION 23 07 13 - DUCT INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes insulating the following duct services:

1. Indoor, concealed supply and outdoor air.
2. Indoor, exposed supply and outdoor air.

1.2 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).

1.3 INFORMATIONAL SUBMITTALS

A. 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.

B. Field quality-control reports.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers are to be marked with the manufacturer's name, appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.5 COORDINATION

A. Coordinate clearance requirements with duct Installer for duct insulation application.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products in accordance with ASTM E84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation, jacket materials, adhesive, mastic, tapes, and cement material containers with appropriate markings of applicable testing agency.

1. All Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2.2 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 are to be applied.

B. Products do not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel have a leachable chloride content of less than 50 ppm when tested in accordance with ASTM C871.

D. Insulation materials for use on austenitic stainless steel are qualified as acceptable in accordance with ASTM C795.

E. Glass-Fiber Blanket: Glass fibers bonded with a thermosetting resin; suitable for maximum use temperature up to 450 deg F in accordance with ASTM C411. Comply with ASTM C553, Type II, and ASTM C1290, Type III with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
   a. Johns Manville
   b. Owens Corning
   c. Knauf Insulation
   d. Manson Insulation

2.3 ADHESIVES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M
2. H.B. Fuller Company
3. Stego Industries
4. Meridian Adhesives Group
5. Sika Corporation

B. Materials are compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

C. Glass-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

D. FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

2.4 MASTICS AND COATINGS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. H.B. Fuller Company
2. Stego Industries
3. Meridian Adhesives Group
4. Sika Corporation

B. Materials are compatible with insulation materials, jackets, and substrates.

C. Vapor-Retarder Mastic, Water Based, Interior Use: Suitable for indoor use on below ambient services.

1. Water-Vapor Permeance: Comply with ASTM C755, Section 7.2.2, Table 2, for insulation type and service conditions.
2. Service Temperature Range: Minus 20 to plus 180 deg F.
3. Color: White.

2.5 SEALANTS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M
2. Intertape Polymer Group
3. Shurtape Technologies
4. Avery Dennison Corporation

B. FSK and Metal Jacket Flashing Sealants:

1. Materials are 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.

2.6 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. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C1136, Type II.

2.7 TAPES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M
2. Intertape Polymer Group
3. Shurtape Technologies
4. Avery Dennison Corporation

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C1136.

1. Width: 3 inches.
2. Thickness: 6.5 mils.
3. Adhesion: 90 ounces force/inch in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch in width.
6. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

2.8 SECUREMENTS

A. 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.

2. Cupped-Head, 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 with integral 1-1/2-inch galvanized carbon-steel washer.

3. 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. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
   b. Spindle: Copper- or zinc-coated, low-carbon steel, fully annealed, 0.106-inch-diameter shank, length to suit depth of insulation indicated.
   c. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.

4. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick, galvanized-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
   a. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.

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

3.1 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.

3.2 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.3 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, compress, or otherwise damage insulation or jacket.

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. Replace insulation materials that get wet during storage or in the installation process before being properly covered and sealed in accordance with Contract Documents.

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, but not to the extent of creating wrinkles or areas of compression in the insulation.
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 4 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.

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.

3.4 INSTALLATION OF GLASS-FIBER INSULATION

A. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

B. Comply with manufacturer's written installation instructions.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 50 percent coverage of duct and plenum surfaces.
2. 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.

3. 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 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.

4. 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.
5. 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.
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.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Inspect ductwork, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection is limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.

C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.6 DUCT INSULATION SCHEDULE, GENERAL

A. Plenums and Ducts Requiring Insulation:

1. Indoor, concealed supply and outdoor air.

2. Indoor, exposed supply and outdoor air.

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.

3.7 INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Concealed, rectangular, supply-air duct insulation is the following:

1. Glass-Fiber Blanket: 1-1/2 inches thick and 0.75 lb/cu. ft. nominal density.

B. Exposed, rectangular, outdoor-air duct insulation is the following:

1. Glass-Fiber Blanket: 1-1/2 inches thick and 0.75 lb/cu. ft. nominal density.

END OF SECTION 23 07 13 - DUCT INSULATION

SECTION 23 07 19 - HVAC PIPING INSULATION

PART 1 GENERAL

1.01 **SUMMARY**

A. Section includes insulation for HVAC piping systems.

1.02 **ACTION SUBMITTALS**

A. Product Data: For each type of product. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory and field applied, if any).

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.

2. Detail attachment and covering of heat tracing inside insulation.

3. Detail insulation application at pipe expansion joints for each type of insulation.

4. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.

5. Detail removable insulation at piping specialties.

6. Detail application of field-applied jackets.

7. Detail application at linkages of control devices.

1.03 **INFORMATIONAL SUBMITTALS**

A. Qualification Data: For qualified Installer.

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.

1.04 **QUALITY ASSURANCE**

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or craft training program.

1.05 **DELIVERY, STORAGE, AND HANDLING**

A. Packaging: Insulation system materials are to be delivered to the Project site in unopened containers. The packaging is to include name of manufacturer, fabricator, type, description, and size.

1.06 **COORDINATION**

A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Section 230529 "Hangers and Supports for HVAC Piping and Equipment."

B. 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.

1.07 **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.

PART 2 PRODUCTS

2.01 **PERFORMANCE REQUIREMENTS**

A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products in accordance with ASTM E84 by a testing agency acceptable to authority having jurisdiction. Factory label insulation, jacket materials, adhesive, mastic, tapes, and cement material containers with appropriate markings of applicable testing agency.

1. All Insulation Installed Indoors and Outdoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2.02 **INSULATION MATERIALS**

A. Comply with requirements in "Piping Insulation Schedule, General," "Indoor Piping Insulation Schedule," "Outdoor, Aboveground Piping Insulation Schedule," and "Outdoor, Underground Piping Insulation Schedule" articles for where insulating materials are applied.

B. Products do not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come into contact with stainless steel have a leachable chloride content of less than 50 ppm when tested in accordance with ASTM C871.

D. Foam insulation materials do not use CFC or HCFC blowing agents in the manufacturing process.

E. Flexible Elastomeric: Closed-cell, or expanded-rubber materials; suitable for maximum use temperature between minus 70 deg F and 220 deg F. Comply with ASTM C534/C534M, Type I, for tubular materials, Type II for sheet materials.

1. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

a. Armacell
b. K-Flex
c. Aeroflex

F. Glass-Fiber, Preformed Pipe: Glass fibers bonded with a thermosetting resin; suitable for maximum use temperature up to 850 deg F in accordance with ASTM C411. Comply with ASTM C547.

1. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
   a. Johns Manville
   b. Owens Corning
   c. Knauf Insulation
   d. Manson Insulation

2. Preformed Pipe Insulation: Type I, Grade A, with factory-applied ASJ-SSL.
3. Fabricated shapes in accordance with ASTM C450 and ASTM C585.
4. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

2.03 ADHESIVES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Sika
2. Aeroflex
3. H.B Fuller
4. 3M
5. Johns Manville
6. Owens Corning
7. Proto Corporation

B. Materials are compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

C. Flexible Elastomeric Adhesive: Solvent-based adhesive.

1. Flame-spread index is 25 or less and smoke-developed index is 50 or less as tested in accordance with ASTM E84.

2. Wet Flash Point: Below 0 deg F.

3. Service Temperature Range: 40 to 200 deg F.

4. Color: Black.

D. Glass-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

E. PVC Jacket Adhesive: Compatible with PVC jacket.

2.04 **MASTICS AND COATINGS**

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. H.B. Fuller Company
2. Stego Industries
3. Meridian Adhesives Group
4. Sika Corporation

B. Materials are compatible with insulation materials, jackets, and substrates.

C. Vapor-Retarder Mastic, Water Based: Suitable for indoor use on below-ambient services.

1. Water-Vapor Permeance: Comply with ASTM E96/E96M or ASTM F1249.

2. Service Temperature Range: 0 to plus 180 deg F.

3. Comply with MIL-PRF-19565C, Type II, for permeance requirements.

4. Color: White.

D. Breather Mastic: Water based; suitable for indoor and outdoor use on above-ambient services.

1. Water-Vapor Permeance: ASTM E96/E96M, greater than 1.0 perm at manufacturer's recommended dry film thickness.

2. Service Temperature Range: Minus 20 to plus 180 deg F.

3. Color: White.

2.05 **SEALANTS**

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Johns Manville
2. Proto Corporation
3. Speedline

B. Materials are as recommended by the insulation manufacturer and are compatible with insulation materials, jackets, and substrates.

C. Joint Sealants:

1. Permanently flexible, elastomeric sealant.

a. Service Temperature Range: Minus 150 to plus 250 deg F.
b. Color: White or gray.

D. PVC Jacket Flashing Sealants:

1. Fire- and water-resistant, flexible, elastomeric sealant.
2. Service Temperature Range: Minus 40 to plus 250 deg F.
3. Color: White.

2.06 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-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C1136, Type I.

2.07 FIELD-APPLIED JACKETS

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Johns Manville
2. Proto Corporation
3. PIC Plastics
4. Speedline

B. Field-applied jackets comply with ASTM C1136, Type I, unless otherwise indicated.

C. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.

1. Adhesive: As recommended by jacket material manufacturer.
2. Color: White.
3. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.

a. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.

2.08 TAPES

A. Manufacturer: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M
2. K-Flex
3. Zeston
4. Proto

B. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C1136.

1. Width: 3 inches.
2. Thickness: 11.5 mils.

3. Adhesion: 90 ounces force/inch in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch in width.
6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.

1. Width: 2 inches.
2. Thickness: 6 mils.
3. Adhesion: 64 ounces force/inch in width.
4. Elongation: 500 percent.
5. Tensile Strength: 18 lbf/inch in width.

2.09 **SECUREMENTS**

A. Staples: Outward-clinching insulation staples, nominal 3/4 inch wide, stainless steel or Monel.

B. 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.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 **PREPARATION**

A. Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

B. 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. 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.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and of thicknesses required for each item of pipe 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, compress, or otherwise damage insulation or jacket.

D. Install insulation with longitudinal seams at top and bottom (12 o'clock and 6 o'clock positions) of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during storage, application, and finishing. Replace insulation materials that get wet during storage or in the installation process before being properly covered and sealed in accordance with the Contract Documents.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. 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 attached to structure with vapor-barrier mastic.

3. Install insert materials and 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.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth, but not to the extent of creating wrinkles or areas of compression in the insulation.

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. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward-clinching staples along edge at 4 inches o.c.

4. For below-ambient services, apply vapor-barrier mastic over staples.

5. Cover joints and seams with tape, in accordance with insulation material manufacturer's written instructions, to maintain vapor seal.

6. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.

M. Cut insulation in a manner to avoid compressing insulation.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. 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 in similar fashion to butt joints.

P. 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.

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. 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 Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

D. 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 Section 078413 "Penetration Firestopping" for firestopping and fire-resistive joint sealers.

E. Insulation Installation at Floor Penetrations:

1. Pipe: Install insulation continuously through floor penetrations.

2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

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 below.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, Mechanical Couplings, and Unions:

1. Install insulation over fittings, valves, strainers, flanges, mechanical couplings, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.

2. Insulate pipe elbows using prefabricated fitting insulation or mitered or routed fittings made from same material and density as that of adjacent pipe insulation. Each piece is 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 prefabricated fitting insulation or sectional pipe insulation of same material and thickness as that 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. 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 reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.

5. 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.

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.

3.06 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

B. Insulation Installation on Pipe Fittings and Elbows:

1. Install sections of pipe insulation and miter if required in accordance with manufacturer's written instructions.

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.

C. Insulation Installation on Valves and Pipe Specialties:

1. Install prefabricated valve covers manufactured of same material as that of pipe insulation when available.

2. When prefabricated 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.

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 INSTALLATION OF GLASS-FIBER INSULATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands, and tighten bands without deforming insulation materials.

2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.

3. For insulation with jackets on above-ambient surfaces, secure laps with outward-clinched staples at 6 inches o.c.

4. For insulation with jackets on below-ambient surfaces, do not staple longitudinal tabs. Instead, secure tabs with additional adhesive, as recommended by insulation material manufacturer, and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Fittings and Elbows:

1. Install prefabricated sections of same material as that of straight segments of pipe insulation when available.

2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

C. Insulation Installation on Valves and Pipe Specialties:

1. Install prefabricated sections of same material as that of straight segments of pipe insulation when available.

2. When prefabricated sections are not available, install fabricated sections of pipe insulation to valve body.

3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.

4. Install insulation to flanges as specified for flange insulation application.

3.08 INSTALLATION OF FIELD-APPLIED JACKETS

A. Where PVC jackets are indicated and for horizontal applications, install with 1-inch overlap at longitudinal seams and end joints. 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.

3.09 FINISHES

A. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.

3.10 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections: Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection is limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.

C. All insulation applications will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.11 PIPING INSULATION SCHEDULE, GENERAL

A. Insulation conductivity and thickness per pipe size comply with schedules in this Section or with requirements of authorities having jurisdiction, whichever is more stringent.

B. 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.

3.12 INDOOR PIPING INSULATION SCHEDULE

A. Condensate and Equipment Drain Water below 60 Deg F:

1. All Pipe Sizes: Insulation is the following:

a. Glass-Fiber, Preformed Pipe Insulation, Type I: 1/2 inch thick.

B. Refrigerant Suction, Liquid, and Hot-Gas Piping:

1. All Pipe Sizes: Insulation is the following:

a. Flexible Elastomeric: 1 inch thick.

3.13 OUTDOOR, ABOVEGROUND PIPING INSULATION SCHEDULE

A. Refrigerant Suction, Liquid, and Hot-Gas Piping:

1. All Pipe Sizes: Insulation is the following:

a. Flexible Elastomeric: 2 inches thick.

3.14 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Piping, Concealed:

1. None.

D. Piping, Exposed:

1. PVC: 30 mils thick.

3.15 **OUTDOOR, FIELD-APPLIED JACKET SCHEDULE**

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Piping, Concealed:

1. None.

D. Piping, Exposed:

1. PVC: 30 mils thick.

END OF SECTION 23 07 19 - HVAC PIPING INSULATION

SECTION 23 21 13 - HYDRONIC PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Copper tube and fittings.
2. Steel pipe and fittings.
3. Plastic pipe and fittings.
4. Piping joining materials.
5. Transition fittings.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.03 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Piping layout, or BIM model, drawn to scale, indicating the items described in this Section, and coordinated with all building trades.

B. Qualification Data: For Installer.

C. Welding certificates.

1.04 QUALITY ASSURANCE

A. Steel Support Welding: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

B. Pipe Welding: Qualify procedures and operators in accordance with ASME Boiler and Pressure Vessel Code: Section IX.

1. Comply with ASME B31.9 for materials, products, and installation.
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Hydronic piping components and installation are to be capable of withstanding the following minimum working pressures and temperatures unless otherwise indicated:

1. Condenser-Water Piping: 150 psig at 73 deg F.

2. Makeup-Water Piping: 80 psig at 73 deg F.

3. Condensate-Drain Piping: 150 deg F.

2.02 COPPER TUBE AND FITTINGS

A. Drawn-Temper Copper Tube: ASTM B88, Type L.

B. DWV Copper Tube: ASTM B306, Type DWV.

C. Cast-Copper, Solder-Joint Fittings: ASME B16.18 pressure fittings. Do not use solder joints on pipe sizes greater than NPS 4.

D. Wrought-Copper, Solder-Joint Fittings: ASME B16.22 pressure fittings. Do not use solder joints on pipe sizes greater than NPS 4.

E. Cast-Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends. Do not use solder joints on pipe sizes greater than NPS 4.

F. Wrought-Copper Unions: ASME B16.22. Do not use solder joints on pipe sizes greater than NPS 4.

2.03 STEEL PIPE AND FITTINGS

A. Steel Pipe: ASTM A53/A53M black steel with plain ends; welded and seamless, Grade B, and schedule number as indicated in Part 3,"Piping Applications" Article.

B. Cast-Iron Threaded Fittings: ASME B16.4; Classes 125 and 250 as indicated in Part 3, "Piping Applications" Article.

C. Malleable-Iron Threaded Fittings: ASME B16.3, Classes 150 and 300 as indicated in Part 3, "Piping Applications" Article.

D. Malleable-Iron Unions: ASME B16.39; Classes 150, 250, and 300 as indicated in Part 3, "Piping Applications" Article.

E. Cast-Iron Pipe Flanges and Flanged Fittings: ASME B16.1, Classes 25, 125, and 250; raised ground face, and bolt holes spot faced as indicated in "Piping Applications" Article.

F. Wrought-Steel Fittings: ASTM A234/A234M; wall thickness to match adjoining pipe.

G. Cast- and Forged-Steel Flanges and Flanged Fittings: ASME B16.5, including bolts, nuts, and gaskets of the following material group, end connections, and facings:

1. Material Group: 1.1.

2. End Connections: Butt welding.

3. Facings: Raised face.

H. Steel Pipe Nipples: ASTM A733, made of same materials and wall thicknesses as pipe in which they are installed.

2.04 PLASTIC PIPE AND FITTINGS

A. PVC Plastic Pipe: ASTM D1785, with wall thickness as indicated in "Piping Applications" Article.

1. Source Limitations: Obtain PVC plastic pipe from single manufacturer.

2. PVC Socket Fittings: ASTM D2466 for Schedule 40.

B. Smoke and Fire Ratings:

1. Where indicated on Drawings that a plenum-rated piping system is required, the pipe is to be wrapped and/or insulated with fiberglass or mineral wool pipe insulation; field installed.

a. The system is to have a flame-spread classification of less than 25 and smoke-developed rating of less than 50.

b. Pipe, wrap, or insulation as a system to comply with the requirements of CAN/ULC-S102.2, ASTM E84, or UL 2846.

c. For insulation required for thermal and condensation conditions, see Section 230719 "HVAC Piping Insulation."

2.05 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness unless otherwise indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.

b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

D. Solder Filler Metals: ASTM B32, lead-free alloys.

E. Flux: ASTM B813, water flushable.

F. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Solvent Cements for PVC Piping: ASTM D2564. Include primer in accordance with ASTM F656.

2.06 TRANSITION FITTINGS

A. General Requirements:

1. Same size as pipes to be joined.

2. Pressure rating at least equal to pipes to be joined.

3. End connections compatible with pipes to be joined.

B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

C. Plastic-to-Metal Transition Fittings:

1. Source Limitations: Obtain plastic-to-metal transition fittings from single manufacturer.

2. Description:

a. PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions.

b. One end with threaded brass insert and one solvent-cement-socket or threaded end.

3. One-piece fitting with one threaded brass or copper insert and one solvent-cement-joint end of material and wall thickness to match plastic pipe material.

PART 3 EXECUTION

3.01 PIPING APPLICATIONS

A. Condenser-Water Piping, Aboveground, NPS 2-1/2 and Larger, to Be Any of the Following:

1. Schedule 40, Grade B, steel pipe, ASTM A53 (E or S) or ASTM A106 steel fittings and welded joints.

B. Makeup-Water Piping Installed Aboveground to Be Any of the Following:

1. Type L, drawn-temper copper tubing, wrought-copper fittings, and soldered joints.

C. Condensate-Drain and Cooling Tower Drain Piping Installed Aboveground to Be Any of the Following:

1. Type DWV, drawn-temper copper tubing, wrought-copper fittings, and soldered joints.

2. Schedule 40, PVC plastic pipe and fittings and solvent-welded joints.

3.02 INSTALLATION OF PIPING

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Install 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 piping at a uniform grade of 0.2 percent upward in direction of flow.

M. Reduce pipe sizes using eccentric reducer fitting installed with level side up.

N. Install unions in piping, NPS 2 and smaller, adjacent to valves, at final connections of equipment, and elsewhere as indicated.

O. Install flanges in piping, NPS 2-1/2 and larger, at final connections of equipment and elsewhere as indicated.

P. Comply with requirements in Section 230500 "Common Work Results for HVAC" for installation of expansion loops, expansion joints, anchors, and pipe alignment guides.

Q. Comply with requirements in Section 230553 "Identification for HVAC Piping and Equipment" for identifying piping.

R. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 230500 "Common Work Results for HVAC."

S. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 230500 "Common Work Results for HVAC."

T. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 230500 "Common Work Results for HVAC."

3.03 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Soldered Joints: Apply ASTM B813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints in accordance with ASTM B828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B32.

D. Threaded Joints: Thread pipe with tapered pipe threads in accordance with ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.

2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Welded Joints: Construct joints in accordance with AWS D10.12M/D10.12, using qualified processes and welding operators in accordance with "Quality Assurance" Article.

F. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

G. Dielectric Fittings for NPS 5 (DN 125) and Larger: Use dielectric flange kits.

3.04 INSTALLATION OF HANGERS AND SUPPORTS

A. Comply with requirements in Section 230529 "Hangers and Supports for HVAC Piping and Equipment" for hangers, supports, and anchor devices.

B. Install hangers for copper tubing and steel piping, with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

C. Install hangers for plastic piping, with maximum horizontal spacing and minimum rod diameters, to comply with manufacturer's written instructions, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

D. Install hangers for fiberglass piping, with maximum horizontal spacing and minimum rod diameters, to comply with manufacturer's written instructions, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

E. Support horizontal piping within 12 inches of each fitting and coupling.

F. Support vertical runs of copper tubing and steel piping to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

3.05 IDENTIFICATION

A. Identify system components. Comply with requirements for identification materials and installation in Section 230553 "Identification for HVAC Piping and Equipment."

3.06 FIELD QUALITY CONTROL

A. Prepare hydronic piping in accordance with 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 is to be capable of sealing against test pressure without damage to valve. Install blinds in flanged joints to isolate equipment.

5. Install pressure-relief 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 is not to 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.

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 23 21 13 – HYDRONIC PIPING

SECTION 23 23 00 - REFRIGERANT PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Copper tube and fittings.

2. Refrigerants.

1.02 ACTION SUBMITTALS

A. Product Data Submittals: For each product.

1. Submit data for each type of refrigerant piping, fitting, valve, piping specialty, and refrigerant.
2. Submit manufacturers data for refrigerant piping size and 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.

1.03 INFORMATIONAL SUBMITTALS

A. Welding Certificates: For each welder performing shop or field welding on Project.

B. Field Quality-Control Reports: For each field quality control test and inspection.

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. Welding Qualifications: Qualify procedures and personnel in accordance with ASME Boiler and Pressure Vessel Code: Section IX, "Welding, Brazing, and Fusing Qualifications."

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store piping with end caps in place to ensure that piping interior and exterior are clean when installed.

B. Prepare valves and specialties for shipping as follows:

1. Protect internal parts against rust and corrosion.

2. Protect threads and other end connections.

C. Use the following precautions during storage:

1. Maintain valve and specialty end protection.

2. Store valves and specialties indoors and maintain at higher-than-ambient-dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," for refrigerant piping size and 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.

B. Comply with ASHRAE 15.

C. Comply with ASME B31.5.

D. Test Pressure for Refrigerant R-454B, R-32:

1. Suction Tubing for Refrigeration and Air-Conditioning Applications Other than Heat Pumps: 300 psig.

2. Suction Tubing for Heat-Pump Applications: 535 psig.

3. Hot-Gas and Tubing Lines: 535 psig.

2.02 COPPER TUBE AND FITTINGS

A. Copper Tube: ASTM B280, Type ACR.

B. Wrought-Copper Fittings, Solder Joint: ASME B16.22.

C. Wrought-Copper Fittings, Brazed Joint: ASME B16.50.

D. Solder Filler Metals: ASTM B32. Use 95-5 tin antimony or alloy HB solder to join copper socket fittings on copper pipe.

E. Brazing Filler Metals: AWS A5.8M/A5.8.

F. Flexible Connectors:

1. Body: Tin-bronze bellows with woven, flexible, tinned-bronze-wire-reinforced protective jacket.

2. End Connections: Socket ends.

3. Offset Performance: Capable of minimum 3/4-inch misalignment in minimum 7-inch-long assembly.

4. Working Pressure Rating: Factory test at minimum 500 psig.

5. Maximum Operating Temperature: 250 deg F.

G. Premanufactured refrigerant lineset is an acceptable alternative.

2.03 **REFRIGERANTS**

A. R-454B, ASHRAE 34: Difluoromethane and 2,3,3,3-Tetrafluoroprop-1-ene.

B. R-32, ASHRAE 34: Difluoromethane.

PART 3 EXECUTION

3.01 **PIPING APPLICATION SCHEDULES**

A. Refrigerant: R-454B, R-32

B. Suction, Hot-Gas, and Liquid Tubing for Conventional Air-Conditioning (Cooling-Only) Applications, NPS 1-1/2 and Smaller: Copper, Type ACR, annealed-temper tubing and wrought-copper fittings with brazed or soldered joints.

3.02 **INSTALLATION OF PIPING, GENERAL**

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 in accordance with ASHRAE 15.

C. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

D. 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.

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 083113 "Access Doors and Frames" if valves or equipment requiring maintenance is concealed behind finished surfaces.

L. Install refrigerant piping in rigid or flexible conduit in locations where exposed to mechanical injury.

M. 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.

N. When brazing or soldering, remove solenoid-valve coils and sight glasses; also remove valve stems, seats, packing, and accessible internal parts of refrigerant specialties. Do not apply heat near expansion-valve bulb.

O. Install piping with adequate clearance between pipe and adjacent walls and hangers or between pipes for insulation installation.

P. Identify refrigerant piping and valves in accordance with Section 230553 "Identification for HVAC Piping and Equipment."

Q. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 230500 "Common Work Results for HVAC."

R. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 230500 "Common Work Results for HVAC."

S. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 230500 "Common Work Results for HVAC."

3.03 PIPE JOINT CONSTRUCTION

A. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

B. Fill pipe and fittings with an inert gas (nitrogen or carbon dioxide), during brazing or welding, to prevent scale formation.

C. Soldered Joints: Construct joints in accordance with ASTM B828 or CDA's "Copper Tube Handbook."

D. Brazed Joints: Construct joints in accordance with AWS BRH, "Brazing Handbook," Ch. 35, "Pipe and Tubing."

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 or steel.

3.04 INSTALLATION OF HANGERS AND SUPPORTS

A. Comply with Section 230529 "Hangers and Supports for HVAC Piping and Equipment" for hangers, supports, and anchor devices.

B. Install the following pipe attachments:

1. Adjustable steel clevis hangers for individual horizontal runs less than 20 ft. long.

2. Copper-clad hangers and supports for hangers and supports in direct contact with copper pipe.

C. Install hangers for copper tubing, with maximum horizontal spacing and minimum rod diameters, to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

D. Support horizontal piping within 12 inches of each fitting.

E. Support vertical runs of copper tubing to comply with MSS SP-58, locally enforced codes, and authorities having jurisdiction requirements, whichever are most stringent.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. 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 must maintain test pressure at the manifold gauge 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.

C. Prepare test and inspection reports.

3.06 **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.

3.07 **ADJUSTING**

A. Adjust set-point temperature of air-conditioning or chilled-water controllers to the system design temperature.

END OF SECTION 23 23 00 - REFRIGERANT PIPING

SECTION 23 31 13 - METAL DUCTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Single-wall rectangular ducts and fittings.
2. Sheet metal materials.
3. Sealants and gaskets.
4. Hangers and supports.

1.2 ACTION SUBMITTALS

A. Submittals:

1. Sheet metal thicknesses.
2. Joint and seam construction and sealing.
3. Reinforcement details and spacing.
4. Materials, fabrication, assembly, and spacing of hangers and supports.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and with performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports are to withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Airstream Surfaces: Surfaces in contact with airstream comply with requirements in ASHRAE 62.1.

D. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment," and Section 7 - "Construction and System Startup."

E. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.4.4 - "HVAC System Construction and Insulation."

F. Duct Dimensions: Unless otherwise indicated, all duct dimensions indicated on Drawings are inside clear dimensions and do not include insulation or duct wall thickness.

2.2 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

1. Construct ducts of galvanized sheet steel unless otherwise indicated.
2. For ducts exposed to weather, construct of Type 316 stainless steel indicated by manufacturer to be suitable for outdoor installation.

B. Transverse Joints: Fabricate joints in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Ch. 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS

A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials are to be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A653/A653M.

1. Galvanized Coating Designation: G90.
2. Finishes for Surfaces Exposed to View: Mill phosphatized.

C. Carbon-Steel Sheets: Comply with ASTM A1008/A1008M, with oiled, matte finish for exposed ducts.

D. Stainless Steel Sheets: Comply with ASTM A480/A480M, Type 316, as indicated in "Duct Schedule" Article; cold rolled, annealed, sheet. Exposed surface finish is to be No. 2B, No. 2D, No. 3, or No. 4 as indicated in "Duct Schedule" Article.

E. Reinforcement Shapes and Plates: ASTM A36/A36M, steel plates, shapes, and bars; black and galvanized.

F. Tie Rods: Galvanized steel, 1/4-inch-minimum diameter for lengths 36 inches or less; 3/8-inch-minimum diameter for lengths longer than 36 inches.

2.4 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets adre to be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested in accordance with UL 723; certified by an NRTL.

B. Two-Part Tape Sealing System:

1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
2. Tape Width: 4 inches.
3. Sealant: Modified styrene acrylic.
4. Water resistant.
5. Mold and mildew resistant.
6. Maximum Static-Pressure Class: 10 inch wg, positive and negative.
7. Service: Indoor and outdoor.
8. Service Temperature: Minus 40 to plus 200 deg F.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum.

C. Water-Based Joint and Seam Sealant:

1. Application Method: Brush on.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. Water resistant.
5. Mold and mildew resistant.
6. VOC: Maximum 75 g/L (less water).
7. Maximum Static-Pressure Class: 10 inch wg, positive and negative.
8. Service: Indoor or outdoor.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

D. Flanged Joint Sealant: Comply with ASTM C920.

1. General: Single-component, acid-curing, silicone, elastomeric.
2. Type: S.
3. Grade: NS.
4. Class: 25.
5. Use: O.

E. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

2.5 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Galvanized-steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A603.

E. Steel Cables for Stainless Steel Ducts: Stainless steel complying with ASTM A492.

F. Steel Cable End Connections: Galvanized-steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

H. Riser Supports:

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless Steel Ducts: Stainless steel shapes and plates.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and coordination drawings.

B. Install ducts in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install ducts in maximum practical lengths with fewest possible joints.

D. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

E. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

F. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

G. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

H. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

I. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal

flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

J. Protect duct interiors from moisture, construction debris and dust, and other foreign materials both before and after installation.

K. Elbows: Use long-radius elbows wherever they fit.

1. Fabricate 90-degree rectangular mitered elbows to include turning vanes.
2. Fabricate 90-degree round elbows with a minimum of three segments for 12 inches and smaller and a minimum of five segments for 14 inches and larger.

L. Branch Connections: Use lateral or conical branch connections.

3.2 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.

D. Maintain consistency, symmetry, and uniformity in arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

E. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.3 DUCTWORK EXPOSED TO WEATHER

A. All external joints are to be welded. Seal all openings to provide weatherproof construction.

B. Construct ductwork to resist external loads of wind, snow, ice, and other effects of weather. Provide necessary supporting structures.

C. Single Wall:

1. Ductwork is to be Type 316 stainless steel.

3.4 DUCT SEALING

A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

3.5 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches (100 mm) thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.6 DUCT SCHEDULE

A. Fabricate ducts with galvanized sheet steel except as otherwise indicated and as follows:

1. Fabricate all ducts to achieve SMACNA pressure class, seal class, and leakage class as indicated below.

B. Supply Ducts:

1. Ducts Connected to Air-Handling Units or Equipment Not Listed:

a. Pressure Class: Positive 3-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 8.

C. Outdoor-Air (Not Filtered, Heated, or Cooled) Ducts:

1. Ducts Connected to Air-Handling Units or Equipment Not Listed:

a. Pressure Class: Positive or negative 3-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 8.

D. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel or carbon steel coated with zinc-chromate primer.

2. Stainless Steel Ducts:

   a. Exposed to Airstream: Match duct material.
   b. Not Exposed to Airstream: Galvanized.

E. Elbow Configuration:

1. Rectangular Duct - Requirements for All Velocities: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

   a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
   b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
   c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

END OF SECTION 23 31 13 – METAL DUCTS

SECTION 23 34 23 - HVAC POWER VENTILATORS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Centrifugal ventilators - roof downblast.
2. Centrifugal ventilators - roof upblast.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Construction details, material descriptions, dimensions of individual components and profiles, and finishes for fans.

2. Rated capacities, operating characteristics, and furnished specialties and accessories.

3. Certified fan performance curves with system operating conditions indicated.

4. Certified fan sound-power ratings.

5. Motor ratings and electrical characteristics, plus motor and electrical accessories.

6. Material thickness and finishes, including color charts.

7. Dampers, including housings, linkages, and operators.

B. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.

2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

3. Include diagrams for power, signal, and control wiring.

1.04 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.05 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For HVAC power ventilators to include in normal and emergency operation, and maintenance manuals.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

B. ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. Wind Performance: Air-handling units shall withstand the effects of wind determined in accordance with to ASCE/SEI 7.

E. Capacities and Characteristics: Refer to Drawings.

2.02 CENTRIFUGAL VENTILATORS - ROOF DOWNBLAST

A. Manufacturer: Subject to compliance with requirements, provide Basis of Design product as shown on Drawings or a comparable product by one of the following:

1. Greenheck
2. Loren Cook
3. Twin City Fans
4. PennBarry

B. Housing: Downblast; removable spun-aluminum dome top and outlet baffle; square, one-piece aluminum base with venturi inlet cone.

C. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.

D. Belt Drives:

1. Resiliently mounted to housing.

2. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.

3. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.

4. Fan Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.

5. Motor Pulleys: Adjustable pitch for use with motors through **5** hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions. Provide fixed pitch for use with motors larger than **5** hp.

6. Fan and motor isolated from exhaust airstream.

E. Accessories:

1. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted outside fan housing, factory wired through an internal aluminum conduit.

2. Bird Screens: Removable, 1/2-inch mesh, aluminum or brass wire.

3. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.

F. Prefabricated Roof Curbs: Refer to and coordinate with Architectural Drawings.

2.03 **CENTRIFUGAL VENTILATORS - ROOF UPBLAST**

A. Manufacturer: Subject to compliance with requirements, provide Basis of Design product as shown on Drawings or a comparable product by one of the following:

1. Greenheck
2. Loren Cook
3. Twin City Fans
4. PennBarry

B. Housing: Downblast; removable spun-aluminum dome top and outlet baffle; square, one-piece aluminum base with venturi inlet cone.

C. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.

D. Belt Drives:

1. Resiliently mounted to housing.

2. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.

3. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.

4. Fan Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.

5. Motor Pulleys: Adjustable pitch for use with motors through 5 hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions. Provide fixed pitch for use with motors larger than 5 hp.

6. Fan and motor isolated from exhaust airstream.

E. Accessories:

1. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted outside fan housing, factory wired through an internal aluminum conduit.

2. Bird Screens: Removable, 1/2-inch mesh, aluminum or brass wire.

3. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.

F. Prefabricated Roof Curbs: Refer to and coordinate with Architectural Drawings.

2.04 **MOTORS**

A. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."

1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

2.05 **SOURCE QUALITY CONTROL**

A. AMCA Certification for Fan Sound Performance Rating: Test, rate, and label in accordance with AMCA 311.

B. AMCA Certification for Fan Aerodynamic Performance Ratings: Test, rate, and label in accordance with AMCA 211.

C. AMCA Certification for Fan Energy Index (FEI): Test, rate, and label in accordance with AMCA 211.

D. UL Standards: Power ventilators shall comply with UL 705. Power ventilators for use for restaurant kitchen exhaust shall also comply with UL 762.

PART 3 EXECUTION

3.01 **INSTALLATION, GENERAL**

A. Install power ventilators level and plumb.

B. Equipment Mounting:

1. Secure roof-mounted fans to roof curbs with zinc-plated hardware. See Section 077200 "Roof Accessories" for installation of roof curbs.

C. Install units with clearances for service and maintenance.

D. Label units according to requirements specified in Section 230553 "Identification for HVAC Piping and Equipment."

3.02 **ELECTRICAL CONNECTIONS**

A. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

1. Nameplate shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.03 **CONTROL CONNECTIONS**

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring according to Section 260523 "Control-Voltage Electrical Power Cables."

3.04 **STARTUP SERVICE:**

A. Perform startup service.

1. Complete installation and startup checks in accordance with manufacturer's written instructions.

2. Verify that shipping, blocking, and bracing are removed.

3. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.

4. Verify that cleaning and adjusting are complete.

5. For direct-drive fans, verify proper motor rotation direction and verify fan wheel free rotation and smooth bearing operation.

6. For belt-drive fans, disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.

7. Adjust belt tension.

8. Adjust damper linkages for proper damper operation.

9. Verify lubrication for bearings and other moving parts.

10. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.

11. Disable automatic temperature-control operators, energize motor and confirm proper motor rotation and unit operation, adjust fan to indicated rpm, and measure and record motor voltage and amperage.

12. Shut unit down and reconnect automatic temperature-control operators.

13. Remove and replace malfunctioning units and retest as specified above.

3.05 **ADJUSTING**

A. Adjust damper linkages for proper damper operation.

B. Adjust belt tension.

C. Lubricate bearings.

D. Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC."

3.06 **CLEANING**

A. After completing system installation and testing, adjusting, and balancing and after completing startup service, clean fans internally to remove foreign material and construction dirt and dust.

3.07 **FIELD QUALITY CONTROL**

A. Perform tests and inspections.

1. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

2. Test and adjust controls and safeties.

3. Fans and components will be considered defective if they do not pass tests and inspections.

4. Prepare test and inspection reports.

END OF SECTION 23 34 23 - HVAC POWER VENTILATORS

SECTION 23 81 26 - SPLIT-SYSTEM AIR-CONDITIONERS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Split-system air-conditioners.

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.

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.

1.06 **COORDINATION**

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

PART 2 PRODUCTS

2.01 **SPLIT-SYSTEM AIR-CONDITIONERS**

A. Manufacturer: Subject to compliance with requirements, provide Basis of Design product as shown on Drawings or a comparable product by one of the following:

1. Mitsubishi Electric
2. LG
3. Daikin
4. Hitachi

B. Indoor Units (5 tons or Less):

1. Concealed Evaporator-Fan Components:

a. Chassis: Galvanized steel with flanged edges, removable panels for servicing, and insulation on back of panel.

b. Insulation: Faced, glass-fiber duct liner.

c. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and thermal-expansion valve. Comply with ARI 206/110.

d. Fan: Forward-curved, double-width wheel of galvanized steel; directly connected to motor.

e. Fan Motors:

1) Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 230500 "Common Work Results for HVAC."

2) Multitapped, multispeed with internal thermal protection and permanent lubrication.

3) Wiring Terminations: Connect motor to chassis wiring with plug connection.

f. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

g. Filters: Permanent, cleanable.

h. Condensate Drain Pans:

1) 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.

a) Length: Extend drain pan downstream from leaving face to comply with ASHRAE 62.1.

b) Depth: A minimum of 2 inches deep.

2) Double-wall, galvanized or stainless-steel sheet with space between walls filled with foam insulation and moisture-tight seal.

3) Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.

4) Pan-Top Surface Coating: Asphaltic waterproofing compound.

5) Units with stacked coils shall have an intermediate drain pan to collect condensate from top coil.

2. Wall-Mounted, Evaporator-Fan Components:

a. Cabinet: Enameled steel with removable panels on front and ends in color selected by Architect, and discharge drain pans with drain connection.

b. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and thermal-expansion valve. Comply with ARI 206/110.

c. Fan: Direct drive, centrifugal.

d. Fan Motors:

1) Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 230500 "Common Work Results for HVAC."

2) Multitapped, multispeed with internal thermal protection and permanent lubrication.

3) Enclosure Type: Totally enclosed, fan cooled.

4) NEMA Premium (TM) efficient motors as defined in NEMA MG 1.

5) Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.

6) Mount unit-mounted disconnect switches on interior of unit.

e. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

f. Condensate Drain Pans:

1) 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.

a) Length: Extend drain pan downstream from leaving face to comply with ASHRAE 62.1.

b) Depth: A minimum of 1 inch deep.

2) Double-wall, galvanized or stainless-steel sheet with space between walls filled with foam insulation and moisture-tight seal.

3) Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.

4) Pan-Top Surface Coating: Asphaltic waterproofing compound.

g. Air Filtration Section:

1) General Requirements for Air Filtration Section:

a) Comply with NFPA 90A.

b) Minimum MERV according to ASHRAE 52.2.

c) 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.

2) Disposable Panel Filters:

a) Factory-fabricated, viscous-coated, flat-panel type.

b) Thickness: 1 inch.

c) MERV according to ASHRAE 52.2: 5.

d) Media: Interlaced glass fibers sprayed with nonflammable adhesive.

e) Frame: Galvanized steel, with metal grid on outlet side, steel rod grid on inlet side, and hinged; with pull and retaining handles.

C. Outdoor Units (5 tons or Less):

1. Air-Cooled, Compressor-Condenser Components:

   a. Casing: Steel, finished with baked enamel in color selected by Architect, 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.

   b. 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.

      1) Compressor Type: Scroll.

      2) Two-speed compressor motor with manual-reset high-pressure switch and automatic-reset low-pressure switch.

      3) Refrigerant: R-454b.

      4) Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and liquid subcooler. Comply with ARI 206/110.

   c. Heat-Pump Components: Reversing valve and low-temperature-air cutoff thermostat.

   d. Fan: Aluminum-propeller type, directly connected to motor.

   e. Motor: Permanently lubricated, with integral thermal-overload protection.

   f. Low Ambient Kit: Permits operation down to 45 deg F.

D. Accessories

1. Thermostat:

   a. Low voltage with subbase to control compressor and evaporator fan, with the following features. Provide all low voltage wiring per manufacturers requirements.

      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.

2. Automatic-reset timer to prevent rapid cycling of compressor.

3. Drain Hose: For condensate.

E. Capacities and Characteristics: Refer to drawing schedules.

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. Install roof-mounted, compressor-condenser components on equipment supports specified in Section 077200 "Roof Accessories." Anchor units to supports with removable, cadmium-plated fasteners.

D. Install and connect precharged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

E. Provide all low voltage control wiring between indoor and outdoor units as well as wall mounted controller per manufacturers requirements.

3.02 CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement 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. Perform tests and inspections.

1. Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

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. Perform startup service.

1. Complete installation and startup check according to manufacturer's written instructions.

END OF SECTION 23 81 26 - SPLIT-SYSTEM AIR-CONDITIONERS

SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 **CONDITIONS**

A. Wherever the reference to “contractor” or “this contractor” appears in these Specifications, it shall mean the Contractor that is responsible for the electrical work of the project as indicated in the Scope of Work.

B. Specific items of electrical work for this project are indicated on the Contract Drawings.

1.02 **WORK INCLUDED**

A. This Contractor shall furnish all labor, tools, equipment and materials necessary to complete the Electrical Work as shown.

B. Contractor is responsible for all Bidding Requirements, General Conditions and Division I General Requirements.

C. Contractor is responsible to review and understand all drawings and all work of all trades to ensure a complete and thorough project. The Contractor shall become familiar with all drawings relating to this project in order to layout the work so as not to interfere with the work of other trades.

D. Provide all labor, tools, materials, equipment, coordination, and plans necessary for installation, adjustment, and proper operation of the electrical systems for this project.

E. Provide continuous maintenance of appropriate electrical service to any and all existing structures or areas to remain in operation during the course of the project. Required outages or shutdowns shall be performed only after coordinating and scheduling the outage or shutdown with the Owner. Any premium labor costs associated with nonstandard working hours must be included in the contract cost of the project.

F. Contract drawings and specifications are complementary and must be so used to ascertain all requirements of the work. When the contract drawings and specifications appear to be in conflict, these specifications shall take precedence and shall supersede the contract drawings, however the opinion of the Architect/Engineer shall supersede this precedence.

G. Contract drawings are in part diagrammatic, and they are intended to convey the scope of work and indicated general arrangements of equipment. Due to the small scale of the drawings, exact locations of equipment, devices, piping, etc. cannot be shown. The Contractor shall, therefore, make allowances for actual conditions when installing his work (i.e., offsets, actual equipment sizes, and connection points) at no additional cost to the Owner or Architect/Engineer.

H. The work of this section includes, but is not necessarily limited to, the following:

1. Electrical demolition and removals indicated on the drawings.

2. Disconnecting existing rooftop electrical equipment and devices indicated to be removed and reconnecting existing equipment and devices indicated to remain.

3. Removal of conduit, conductors, disconnect switches, and related electrical materials back to the nearest junction box below roof, where indicated.

4. New branch-circuit conduit, conductors, fittings, boxes, and terminations required for reconnection of rooftop mechanical equipment and receptacles shown on the drawings.

5. New weatherproof receptacles and new non-fused disconnect switches shown on the drawings.

6. Reconnection of existing satellite dish and antenna cabling associated with the work.

7. Removal and replacement of lightning protection components where indicated on the drawings.

8. Grounding, bonding, supports, identification, cutting and patching, and firestopping required for a complete installation.

9. Coordination of outages and temporary disconnections required to perform the work.

1.03 **CODES AND STANDARDS**

A. Comply with the latest adopted editions of all applicable federal, state, and local codes and regulations having jurisdiction over the work, including, but not limited to, the National Electrical Code, New York State Uniform Fire Prevention and Building Code, and NFPA standards referenced in the Contract Documents.

B. Electrical equipment, components, and accessories shall be UL certified for the purpose for which the equipment, components, and accessories are used.

1.04 **INSPECTIONS**

A. Permits: The Contractor shall apply for and pay the cost for any local permits necessary for the work of this contract.

B. Inspections: The Contractor shall be responsible for obtaining inspection of and the certificate by the approved inspection agency for the **entire** electrical system. The Contractor shall apply for and pay the cost for this inspection and any other fees that apply which are required by the local authorities related to the work of this contract. It will be the Contractor's responsibility to make necessary corrections, and submit a Certificate of Approval from the local authority having jurisdiction.

C. The undertaking of periodic inspections by the Owner or Architect/Engineer shall not be construed as supervision of actual construction. The Owner or Architect/Engineer is not responsible for providing a safe place of work for the Contractor, Contractor's employees, suppliers or subcontractors for access, visits, use, work, travel or occupancy by any person.

1.05 **SUBMITTALS**

A. Submit manufacturers' shop drawings for proposed equipment, components, and accessories. Submittals to be accurately marked to indicate specific makes and model numbers for the equipment being provided for the project, equipment marks/tags as noted on the Contract Drawings, as well as relevant specific wiring diagrams, controls and other features needed for the installation and operation of the equipment. Submittals not fully marked in this fashion will be rejected.

B. Submit names, addresses, telephone numbers, sales and technical contacts, and other details for each of the proposed equipment, components, and accessories manufacturers ("Manufacturers") and the proposed manufacturers' local representatives ("Manufacturers' Representatives"). Provide Uniform Resource Locator ("URL") addresses (i.e., web-site addresses) when available.

C. Submit delivery lead times for proposed equipment, components, and accessories with the manufacturers' shop drawings.

D. Submit instructional and operations manuals where required for approved equipment, components and accessories.

E. Submit submittals, shop drawings, schematics, documents, requests for authorization, as-built drawings, and instructional manuals as indicated in Division 01.

1.06 **DEFINITIONS**

A. Provide and furnish and install shall have the same meaning as they pertain to this contract. That is, the Contractor shall purchase, transport to the site and install all required components of the work unless specifically stated otherwise in the contract documents.

B. Wiring pertains to raceway, fittings, conductors, terminations, hangers, supports, etc. as required to form a complete system.

C. Unless otherwise stated, the following standard designations shall be:

1. Standard Voltage Designations less than 600 volts:

   a. 480VAC refers to 480VAC 3 Phase 3 wire systems.

   b. 480/277VAC refers to 480/277VAC 3 Phase 4 wire systems.

   c. 240VAC or 240/120VAC refers to 240VAC, 3 Phase 4 wire delta configurations (with "wild leg").

   d. 208VAC refers to 208VAC 3 Phase 3 wire systems.

   e. 208/120VAC refers to 208/120VAC 3 Phase 4 wire systems.

   f. 120/240VAC refers to 120/240VAC single phase 3 wire systems.

2. Standard frequency for AC voltage sources is 60 Hertz.

3. Reduced energy voltage is defined as less than 50 volts, either alternating current or direct current.

1.07 **LOCAL CONDITIONS**

A. This Contractor shall visit the site of the proposed Project to ascertain existing conditions pertaining to the work of this Contract. Failure to do so shall in no way relieve this Contractor of the responsibility to relocate, remove or otherwise effect a change to the existing which may be necessary to complete the work of this Contract.

B. Any discrepancies noted shall be reported to the Architect prior to the bid date and in time for an addendum to be issued.

1.08 **RECORD DRAWINGS (As-Builts)**

A. This Contractor shall provide as-built record drawings as required by Division 01. Drawings shall be in ACAD format unless indicated otherwise.

B. The contractor shall provide all survey work required for the location and construction and documentation of record information necessary.

C. A complete set of red marked contract drawings shall be submitted, at one time, as the “Record” set. If no changes are made to a specific drawing, the contractor shall write “NO CHANGES” on that drawing. All drawings shall be included in the “Record” set.

1.09 **BASIC MATERIALS AND METHODS**

A. Material:

1. Install new and unused materials of latest style and as specified free of all defects which impair the appearance and operation.

2. Provide materials and equipment to meet design and capacity as specified by description and manufacturers catalog number.

3. Include all necessary auxiliary components to form a complete, operating and approved installation.

B. Provide all necessary sleeves, inserts, fasteners, hangers, supports, connectors, etc., for a complete electrical system.

1.10 **INSTALLATION REQUIREMENTS**

A. Provide labor, materials, equipment, and services to perform the operations required for complete removal and installation of Electrical work as shown and called for, including fittings, supports and abandoned cable, etc., that may not be indicated on the plans.

B. Plans show the general design arrangement. Install work as indicated and field verify exact locations and elevations prior to installation or fabrication of any electrical work.

C. Make all necessary changes in existing circuitry, devices, equipment, wiring, controls, etc., as required to accommodate the new work. Include all offsets, changes in elevations to avoid interferences, etc., encountered in the field. Field measure all work locations.

D. Install all work to maintain proper clearances and space for maintenance of equipment.

E. Materials shall be handled and stored in a clean, dry location protected from damage and in accordance with Manufacturer's recommendation.

1.11 **MATERIALS**

A. All materials and equipment shall be new and as specified or of equal or better quality unless otherwise noted. This will be decided by the Architect/Engineer. Alternate materials or equipment not originally specified must be submitted for approval prior to construction.

B. Basic hardware and miscellaneous unspecified items shall meet existing trade standards of quality and shall carry UL or FM listing or certification where applicable.

C. All equipment supplied shall, unless specified otherwise in the contract documents, be the standard equipment of the manufacturer in order that repair or replacement parts may be readily available.

D. Multiple items such as panelboards, wiring devices, switches, breakers, speakers, raceways, etc., shall be from the same manufacturer to ensure uniform appearance and operation and to assist owner maintenance.

E. Drawings and specifications are based on specific manufacturer's equipment. Therefore, the Contractor shall assume all responsibility, cost, and coordination involved in making any necessary revisions to apply or install another manufacturer's equipment, even though it may be approved as an "equal" item by the Architect/Engineer.

F. The Contractor shall provide supports and hangers for the proper support of all apparatus, materials and equipment from ceiling and/or wall construction using all necessary plates, bridging, inserts and expansion shields as required.

G. Enclosure and race way locations as listed in the specifications:

1. Outdoor locations are those areas which are not contained inside an occupancy or structure and those areas in any of the Group U (Utility) occupancy or non-listed occupancies which are not conditioned (with heat and/or ventilation).

2. For locations or for enclosure and/or raceway types indicated on the contract drawings or elsewhere in the specifications, the more stringent ratings (as determined by the Architect/Engineer) shall apply.

1.12 **COORDINATION OF WORK**

A. The Contractor shall exchange information with other Contractor's and Owner's representatives in order to insure orderly progress of the work for this project.

B. The Contractor must contact the Owner's representative and schedule all work. This must be done at least 10 days prior to work, unless otherwise specified. Every project start must be handled in this manner.

C. The Contractor shall refer to all contract documents before installing any items, and shall check for possible interference. If any work is installed, and later develops interference with other features of the design, the Contractor will be responsible to make such changes to eliminate the interference.

1.13 **ARCHITECTURAL CUTTING AND PATCHING**

A. The Contractor shall be responsible for any damage to his work or the work of others caused by his forces and shall repair any damage done to the work, and leave the building premises in approved order at the termination of the project.

B. Cuts and openings shall be no larger than absolutely required.

C. The Contractor shall be responsible for his own cutting and patching as part of his material and installation price. Patching shall be performed by mechanics skilled with the material being patched, shall match existing surroundings, and shall be equal to or better than original conditions.

1.14 **ANCHORS, HANGERS, AND SUPPORTS**

A. Provide all necessary hangers, equipment, racks, and anchors as required for the work of this contract.

1.15 **REMOVAL**

A. All items that are indicated for removal must have all electrical circuits disconnected and removed prior to removal of items by other contractors. Removal includes all controls, conduit, wiring/cabling, supports, piping and related appurtenances.

B. Items to be removed include all items and areas indicated on the contract drawings. Removal of items include removal from the site and disposal of such, including all fees and permits. If items are indicated as being delivered to owner after removal or demolition, the contractor will coordinate the location and method with the owner prior to removal. If not indicated in the Contract Documents, verify if any or all equipment is to be delivered to the owner.

C. Contractor shall dispose of, recycle or otherwise remove all equipment and items indicated, including lubricants, insulators and insulating liquids, coolants and fuels in accordance with all current State, Federal and local laws and codes.

D. Examination of work:

1. Verify that abandon wiring and equipment to be disconnected and removed service only abandoned facilities and devices.

2. Any removal drawings and notes that are part of this set of Contract Documents are based on casual field observation and existing record documents. The contractor is responsible for verifying all items to be disconnect and/or removed.

3. Any discrepancies shall be identified by the contractor and reported to the Architect/Engineer prior to the start of work.

4. Beginning of removal means that the contractor accepts all existing conditions.

E. Scope of removal work:

1. Disconnect all electrical systems in walls, floors, ceilings and areas to be removed. Remove, relocate and/or extend existing installations to accommodate new construction.

2. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations and follow all safety operations.

3. Abandoned conductors are to be removed to source of supply. Abandoned conductors, made so under previous work, will also be removed if in areas of removal.

4. Removed all exposed abandoned conduit, including abandoned conduit above accessible ceilings. Removal includes all conduit indicated in areas affected, including conduit abandoned under previous work. Cut all conduit flush with walls and floors that are not to be affected and patch surfaces.

5. Disconnect and remove all abandon outlets, wiring devices, panelboards, distribution equipment, luminaries, including all brackets and supporting hardware including all equipment and devices made inoperable by other related work.

6. Repair and patch adjacent construction and finishers damaged during removal and/or extension work.

7. Maintain access to all existing electrical equipment that remain active during construction and after completion of work.

8. Clean and repair existing materials and equipment that remain or that are to be reused. Clean all exposed surfaces of equipment and check for tightness of electrical connections of all. Replace circuit breakers, wiring devices and control items damaged or not functional. Provide closure plates, plugs and devices to cover all openings. Provide corrected and/or modified labels and typed circuit schedules for all panelboards and service equipment affected.

END OF SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL SYSTEMS

SECTION 260515 - FIRESTOPPING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 **SUMMARY**

A. Section Includes:

1. Firestopping relating to electrical work.

2. Firestopping accessories.

1.02 **REFERENCES**

A. ASTM International:

1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.

4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.

B. National Fire Protection Association:

1. NFPA 70 - National Electrical Code.

C. Underwriters Laboratories Inc.:

1. UL 263 - Fire Tests of Building Construction and Materials.

2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

3. UL 1479 - Fire Tests of Through-Penetration Firestops.

4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.

5. UL - Fire Resistance Directory.

D. Intertek Testing Services (Warnock Hersey Listed):

1. WH - Certification Listings.

1.03 **DEFINITIONS**

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.04 **SYSTEM DESCRIPTION**

A. Firestopping Materials: ASTM E119, ASTM E814, UL 263, UL 1479 to achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1-hour fire rating.

B. For those portions of the contract drawings where FM, UL or other Design Numbers are noted, provide materials to achieve ratings indicated according to ASTM E119, ASTM E814, UL 263 and UL 1479.

C. Firestop interruptions to fire rated assemblies, materials, and components.

1.05 **PERFORMANCE REQUIREMENTS**

A. Firestopping shall conform to UL listed requirements for the specific penetration condition.

1.06 **SUBMITTALS**

A. Division 01 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Firestopping: Submit data on product characteristics, performance and limitation criteria.

C. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.

D. Manufacturer's Installation Instructions:

1. Firestopping: Submit preparation and installation instructions.

E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

F. Firestopping Engineering Judgments: For conditions not covered by UL or WH listed designs, submit judgments by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.07 **QUALITY ASSURANCE**

A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10-inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.

B. Through Penetration Firestopping of Non-Fire Rated Floor and/or Roof Assemblies: Materials to resist free passage of flame and products of combustion.

1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.

2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.

C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.

D. Perform Work in accordance with State of New York standard.

1.08 **QUALIFICATIONS**

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

1.09 **DELIVERY, STORAGE, AND HANDLING**

A. Division 01 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Division 01 - Product Requirements: Environmental conditions affecting products on site.

B. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F.

C. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.

D. Provide ventilation in areas to receive solvent cured materials.

PART 2 PRODUCTS

2.01 **FIRESTOPPING**

A. Manufacturers:

1. 3M Fire Protection Products.

2. Hilti, Inc.

3. Nelson Firestop; a brand of Emerson Industrial Automation.

4. Substitutions: Division 01 - Product Requirements.

B. Furnish materials in accordance with State of New York standards.

C. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.

2. Foam Firestopping Compounds: Single component foam compound.

3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.

4. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.

5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.

6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.

7. Firestop Pillows: Formed mineral fiber pillows.

2.02 FIRESTOPPING ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.

B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

C. General:

1. Furnish UL listed products or products tested by independent testing laboratory.

2. Select products with rating not less than rating of wall or floor being penetrated.

D. Non-Rated Surfaces:

1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.

2. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.

PART 3 EXECUTION

3.01 EXAMINATION

A. Division 01 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify penetrations and substrate conditions are ready to receive firestopping.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

3.03 INSTALLATION - FIRESTOPPING

A. Install material at fire rated construction perimeters and openings containing penetrating conduit and other items, requiring firestopping. Coordinate roof penetration sealing with roofing work and other trades.

3.04 FIELD QUALITY CONTROL

A. Division 01 - Quality Requirements and Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect installed firestopping for compliance with specifications.

3.05 CLEANING

A. Division 01 - Execution and Closeout Requirements: Requirements for cleaning.

B. Clean adjacent surfaces of firestopping materials.

3.06 PROTECTION OF FINISHED WORK

A. Division 01 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION 26 05 15 – FIRESTOPPING FOR ELECTRICAL SYSTEMS

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 **SUMMARY**

A. Section includes building wire and cable, and wiring connectors and connections.

B. Related Sections:

1. Division 01 - Administrative Requirements, Submittal Procedures: Submittal procedures, Product Requirements, Execution and Closeout Requirements

2. Common Work Results for Electrical Systems.

3. Grounding and Bonding for Electrical Systems

4. Identification for Electrical Systems

1.02 **REFERENCES**

A. International Electrical Testing Association:

1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

B. National Fire Protection Association:

1. NFPA 70 - National Electrical Code.

2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.

C. Underwriters Laboratories, Inc.:

1. UL44 - Rubber Insulated Wires and Cables

2. UL 83 - Thermoplastic Insulated Wires and Cables

3. UL 1093 - Machine Tool Wires and Cables

4. UL 1569 - Metal Clad Cable

D. ASTM:

1. B5 - International Annealed Copper Standard

1.03 **SYSTEM DESCRIPTION**

A. Product Requirements: Provide products as follows:

1. Conductor not smaller than 12 AWG for power and lighting circuits protected at 20A or less.

2. Increase wire size in branch circuits

a. To limit voltage, drop to a maximum of 3 percent.

b. Upsized to next larger size conductor for conductor lengths greater than 150 feet or as noted on the contract drawings.

B. Wiring Methods: Provide the following wiring methods:

1. Use only building wire, Type THHN/THWN-2 or XHHW-2 insulation, in raceway.

2. Do not use conductors and/or cables for applications other than as permitted by NFPA 70 and product listing.

1.04 DESIGN REQUIREMENTS

A. Conductor sizes are based on copper unless indicated as aluminum or "AL".

B. Verify that all connections for circuitry protected at greater than 30A are rated for 75 degree C (minimum).

1.05 SUBMITTALS

A. Division 01 - Submittal Procedures: Requirements for submittals.

1. Submit Product Data and catalog information on all items to be used.

2. Submit Manufacturer's installation instructions. Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.

3. Submit proposed conductor insulation test method (if required), testing equipment to be used and conductors to be tested.

B. Product Data: Submit for building wire and each cable assembly type.

C. Test Reports: Indicate procedures and values obtained.

1.06 CLOSEOUT SUBMITTALS

A. Division 01 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of components and circuits.

1.07 QUALITY ASSURANCE

A. Perform to requirements of NFPA 70.

B. Must meet UL VW-1 ratings.

1.08 **QUALIFICATIONS**

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.09 **COORDINATION**

A. Division 01 - Administrative Requirements: Requirements for coordination.

B. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.

PART 2 PRODUCTS

2.01 **BUILDING WIRE**

A. Acceptable Manufacturers:

1. Cerro Wire & Cable Co.,

2. Industrial Wire & Cable Inc.

3. Southwire Co.

4. Allied Wire and Cable

5. Substitutions: Division 01 - Product Requirements.

B. Product Description: Single conductor insulated wire.

C. Conductor: Copper only - Aluminum is not allowed unless specifically indicated.

D. Insulation Rating: 600 volts 90 degree C Thermoplastic THHN/THWN-2 or XHHW-2.

E. All conductors shall be UL listed, be labeled with the UL seal and contain the manufacturer's name, wire size and insulation type.

2.02 **WIRING CONNECTORS**

A. Manufacturers; Spring Wire Connectors, 600V, 90C (minimum), Insulated, Copper rated with insulated protective skirts:

1. 3M,

2. Ideal,

3. Thomas & Betts.

4. AMP.

5. Substitutions: Division 01 - Product Requirements.

B. Manufacturers; Compression Connectors, 600V, 90C (minimum), Insulated, Copper rated:

1. Raco,

2. Ideal,

3. Blackburn.

4. Substitutions: Division 01 - Product Requirements.

C. Manufacturers; Multitap Insulated Connectors, 600V, 90C, Insulated, Copper rated:

1. Ilsco,

2. Burndy,

3. Thomas & Betts.

4. NSI.

5. Substitutions: Division 01 - Product Requirements.

2.03 **TERMINATIONS**

A. Rated 600V, 90C (minimum), Insulated, Copper rated.

B. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.

C. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

PART 3 EXECUTION

3.01 **EXAMINATION**

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Verify raceway installation is complete and supported.

3.02 **PREPARATION**

A. Completely and thoroughly swab raceway before installing wire.

3.03 **EXISTING WORK**

A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.

B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.

C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.

D. Extend existing circuits using materials and methods compatible with existing electrical installations, or as specified.

E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

3.04 **INSTALLATION**

A. Route wire and cable to meet Project conditions.

B. Neatly train and lace wiring inside boxes, equipment, and panelboards.

C. Special Techniques--Building Wire in Raceway:

1. Pull conductors into raceway at same time.

D. Special Techniques - Wiring Connections:

1. Clean conductor surfaces before installing lugs and connectors.

2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.

4. Install solder less pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller. Connections for 250MCM and larger shall be long barrel type allowing for double indentation. Terminating connectors for conductor sizes larger than 250MCM shall have two (2) holes in the tongue for termination.

5. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG through 18 AWG.

6. Split bolt connections will not be allowed.

7. Install suitable reducing connectors or mechanical connector adaptors for connecting aluminum conductors to copper conductors.

E. Install solid conductors for branch circuits 10 AWG and smaller and stranded for 8 AWG and larger. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.

F. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers. Use specified wiring connectors.

G. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars. Utilize manufacturer's recommended tools or dies.

H. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

I. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connectors.

J. Secure and support conductors and cables in accordance with NFPA 70.

K. Install conductors with a minimum of 12 inches of slack/excess at each outlet or termination point.

3.05 **WIRE COLOR**

A. Identify and color code wire and cable under provisions of "Identification for Electrical Systems". Identify each conductor with its circuit number or other designation indicated.

B. General:

1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:

a. Black and red for single phase circuits at 120/240 volts with white conductors.

b. Black, red, and blue for circuits at 208/120 volts single or three phase with white neutral conductors.

c. Brown, Orange, and Yellow for circuits at 480/277 volts single or three phase with white or grey neutral conductors.

C. Neutral Conductors: When two or more neutrals are located in one conduit, individually identify each with proper circuit number.

D. Uniquely color code each phase throughout.

E. Ground Conductors:

1. For 10 AWG and smaller: Green.

2. For isolated grounds, utilize green with yellow stripe.

3. For circuits that may remain energized when main disconnect is in the OFF position, utilize yellow color and identify each conductor at both ends and at visible points including junction boxes

3.06 **FIELD QUALITY CONTROL**

A. Division 01 - Quality Requirements and Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect and test all conductors in accordance with NETA ATS, except Section 4.

C. Prepare test and inspection reports for all test above, 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 – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 **SUMMARY**

A. Section Includes:

1. Equipment grounding.
2. Wire for Grounding.
3. Mechanical connectors.

B. Related Sections:

1. Division 01 - Administrative Requirements, Submittal Procedures: Submittal procedures, Product Requirements, Execution and Closeout Requirements
2. Common Work Results for Electrical Systems.

1.02 **REFERENCES**

A. Institute of Electrical and Electronics Engineers:

1. IEEE 81 - Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Ground Systems
2. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
3. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.

B. International Electrical Testing Association:

1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

C. National Fire Protection Association:

1. NFPA 70 - National Electrical Code.
2. NFPA 780 - Standard for Installation of Lightning Protection Systems

1.03 **SUBMITTALS**

A. Division 01 - Submittal Procedures: Requirements for submittals.

1. Prior to construction:

   a. Submit Product Data including manufacturers instructions for all items.

2. After construction:

   a. Submit Test Reports. Indicate overall resistance to ground for various ground systems. Include information on test instruments and method used including instrument make and model and calibration status. Indicate exact locations where test values were measured and electrodes were placed during tests.

   b. Submit accurate record documents showing actual locations of grounding electrodes.

1.04 **CLOSEOUT SUBMITTALS**

A. Division 01 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of components and grounding electrodes.

1.05 **QUALITY ASSURANCE**

A. Provide grounding materials conforming to requirements of NEC, IEEE 142, and UL labeled.

B. Maintain one copy of each document on site.

1.06 **QUALIFICATIONS**

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing work of this section with minimum 3 years documented experience approved by manufacturer.

1.07 **DELIVERY, STORAGE, AND HANDLING**

A. Division 01 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

D. Do not deliver items to project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

1.08 **COORDINATION**

A. Division 01 - Administrative Requirements: Requirements for coordination.

PART 2 PRODUCTS

2.01 EQUIPMENT OR BRANCH CIRCUIT GROUNDING

A. Provide insulated ground conductor as indicated on the contract documents.

B. Bond Metal Conduit to enclosures and equipment or branch ground conductor, utilizing Insulated Grounding Bushings for all sizes of Metal Conduit.

2.02 MECHANICAL CONNECTORS

A. Manufacturers:

1. Cooper Power Systems,
2. Framatome Connectors International (FCI)
3. Burndy,
4. Ilsco Corp.
5. Substitutions: Division 01 - Product Requirements.

B. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

1. Connectors, clamps and terminals – mechanical connectors and clamps made of copper allow or silicon bronze.

PART 3 EXECUTION

3.01 EXAMINATION

A. Division 01 - Administrative Requirements: Verification of existing conditions before starting work.

3.02 PREPARATION

A. Remove paint, rust, mill oils and surface contaminants at connection points.

3.03 EXISTING WORK

A. Modify existing grounding system to maintain continuity to accommodate renovations.

B. Extend existing grounding system using materials and methods compatible with existing electrical installations, or as specified.

3.04 **INSTALLATION OF GROUNDING IN ALL LOCATIONS**

A. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing. Use flexible straps for vibrating/moveable equipment.

B. Bond to lightning protection system if provided or present.

C. Permanently ground entire light and power system in accordance with NEC, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.

D. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Size grounding conductors in accordance with NEC or as indicated on drawings. Install from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes, receptacle outlet boxes or metal enclosures of electrical distribution system and service equipment per NEC. Ground conduits by means of grounding bushings on terminations at panel boards with minimum installed #12 insulated conductor to grounding system.

E. Permanently attach equipment and grounding conductors prior to energizing equipment.

END OF SECTION 26 05 26 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.

B. Related Sections:

1. Division 01 - Administrative Requirements, Submittal Procedures, Product Requirements, Execution and Closeout Requirements

2. Common Work Results for Electrical Systems.

1.02 ACTION SUBMITTALS

A. Product Data: For the following:

1. Steel slotted support systems. Include touch up paint and re-galvanizing material for approval.

2. Anchors to be used.

1.03 QUALITY ASSURANCE

A. Comply with NFPA 70.

PART 2 PRODUCTS

2.01 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Allied Tube & Conduit.

b. Cooper B-Line, Inc.; a division of Cooper Industries.

c. ERICO International Corporation.

d. GS Metals Corp.

e. Thomas & Betts Corporation.

f. Unistrut; Tyco International, Ltd.

g. Wesanco, Inc.

h. Substitutions: Division 01 - Product Requirements.

2. Metallic Coatings:

a. Unless indicated otherwise, provide hot-dip galvanized after fabrication and applied according to MFMA-4. Finish to be ASTM B5633-78 Type LS coating electrogalvanized on steel to 0.0005 inch with gold zinc dichromate barrier. Coating to be applied after factory fabrication and punching. After installation, deburr and re-galvanized all drilled holes and saw cuts.

b. Do not utilize of provide nonmetallic or painted coatings.

3. Channel Dimensions: Selected for applicable load criteria.

a. Provide 1.5" (minimum) cross sectional width unless indicated or approved otherwise.

b. Channels to be 12 gauge minimum thickness unless indicated otherwise.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. 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; a division of Illinois Tool Works, Inc.

3) MKT Fastening, LLC.

4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

5) Substitutions: Division 01 - Product Requirements.

2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened Portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Cooper B-Line, Inc.; a division of Cooper Industries.

2) Empire Tool and Manufacturing Co., Inc.

3) Hilti Inc.

4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.

5) MKT Fastening, LLC.

6) Substitutions: Division 01 - Product Requirements.

3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.

4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.

5. Toggle Bolts: All-steel springhead type.

6. Hanger Rods: Threaded steel.

2.02 **TYPE OF ROOFTOP SUPPORTS**

A. Rooftop conduit support systems shall be manufactured by one of the following approved manufacturers:

1) Eaton B-Line/Dura-Blok.

2) MIRO Industries.

3) PHP Systems/Design.

B. Rubber block supports shall be suitable for exterior rooftop conduit support applications, UV resistant, weather resistant, and compatible with the roof membrane. Provide accessories and fasteners recommended by the support manufacturer.

C. Basis of design: Eaton B-Line Dura-Blok model DB10 or approved equal.

PART 3 EXECUTION

3.01 **APPLICATION**

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 3/8 inch in diameter.

C. 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 single-bolt conduit clamps.

3.02 **SUPPORT INSTALLATION**

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. 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).

C. 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 Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.

3. To Existing Concrete: Expansion anchor fasteners.

4. 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.

5. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.

6. To Light Steel: Sheet metal screws.

D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.03 **PAINTING**

A. Metallic Surfaces: Clean welds, bolted connections, saw cuts, and abraded areas and apply galvanizing-repair paint (as appropriate) to comply with ASTM A780.

END OF SECTION 26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 **SUMMARY**

A. Section includes conduit and tubing, surface raceways, wire-way, outlet boxes, pull and junction boxes and nonmetallic non-concrete hand holes and manholes.

B. Related Sections:

1. Division 01 - Administrative Requirements, Submittal Procedures: Submittal procedures, Product Requirements, Execution and Closeout Requirements

2. Common Work Results for Electrical Systems.

3. Grounding and Bonding for Electrical Systems.

4. Hangers and Supports for Electrical Systems.

1.02 **REFERENCES**

A. American National Standards Institute:

1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.

B. National Electrical Manufacturers Association:

1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

3. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.

4. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.

5. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

C. National Fire Protection Administration

1. NFPA 70 - National Electric Code

D. National Electrical Contractors Association

1. NECA Standard of Installation

1.03 **SYSTEM DESCRIPTION**

A. Normal conduit/circular raceway elbows (sometimes referred to as SR or short radius elbows) shall be sized at a minimum bending radius of one times the diameter of the raceway. No sharper bending shall be allowed. Where referenced, Long Radius (LR) elbows shall be sized at a minimum bending radius of 1.5 times the diameter of the raceway. If field bending is done, these bending radius dimensions shall be maintained as indicated.

B. Raceways and boxes located as indicated on Drawings and at other locations required for wire pulling and compliance with regulatory requirements. Raceways and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.

C. Minimum Conduit Raceway Size: 1/2 inch for individual branch circuits or single cable applications and 3/4 inch all other locations unless otherwise specified.

D. No metal connectors, fittings or sections of metal conduit (Rigid Steel Conduit, Electrical Metallic Tubing or PVC coated Rigid Metal Conduit) or Flexible Conduit or metal encased cable with metal components, will be allowed in continuous runs of any Non-Metallic Conduit including those with Flexible Conduit.

E. Outdoor Locations, Above Grade: Provide Schedule 80 nonmetallic conduit or PVC coated Rigid Metal Conduit. Provide nonmetallic or PVC coated cast outlet, pull or junction boxes to match conduit.

F. Wet and Damp Locations: Schedule 80 nonmetallic conduit or PVC coated Rigid Metal Conduit. When mounted in areas or locations of possible mechanical damage such as along exposed in-ground tanks or as indicated on contract drawings, use only PVC coated Rigid Metal Conduit. Provide PVC Coated cast metal or nonmetallic outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.

G. Concealed Dry Locations: Provide in locations such as above ceilings and/or in gypsum wall applications, use Rigid Metal Conduit or Electrical Metallic Tubing (EMT). Provide sheet-metal boxes to match conduit. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes. For installations in masonry or concrete walls, or conduit containing conductors at greater than 600V, use Rigid Metal Conduit only.

H. Exposed Dry Locations: Provide Rigid Metal Conduit, Electrical Metallic Tubing (EMT) or Rigid Nonmetallic Conduit. Provide nonmetallic, cast or sheet-metal boxes to match conduit. Provide surface mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

I. Use flexible conduit to connect rigid conduit to instruments, lights, motors and other electrical devices where direct connection with rigid conduit is not practical or device is prone to vibration. Flexible conduit is not to be installed taut. Length of connection made with flexible conduit is not to exceed five (5) feet in length from rigid conduit to device. Do not install flexible conduit to connect pull or junction boxes. Rigid conduits are to be supported within 6 inches of connection to flexible conduit. Do not install flexible conduit longer than five (5) feet in length.

1.04 **SUBMITTALS**

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Product data and information: For all products, provide dimensional information, material description, finish information, agency approvals and information to verify all requirements in this section. Provide a table indicating which products (and sizes) are to be used at specified locations.

C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.05 **CLOSEOUT SUBMITTALS**

A. Division 01 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents:

1. Record actual routing of conduits larger than 2 inches.

2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

1.06 **DELIVERY, STORAGE, AND HANDLING**

A. Division 01 - Product Requirements: Product storage and handling requirements.

B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

1.07 **COORDINATION**

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Coordinate installation of outlet boxes for equipment connected under related sections.

C. Verify routing and termination locations of conduit prior to rough in.

D. Conduit routing shown on Drawings is approximate unless dimensioned. Route as required to complete wiring system.

PART 2 PRODUCTS

2.01 **RIGID METAL CONDUIT (RMC)**

A. Manufacturers:

1. Allied Tube & Conduit; a part of Atkore International.

2. Western Tube and Conduit Corporation.

3. Wheatland Tube Company.

4. Steel Duct.

5. Triangle.

6. Substitutions: Division 01 - Product Requirements.

B. Rigid Galvanized Steel Conduit (RGS): UL listed - ANSI C80.1.

1. Use RGS for all RMC applications.

2. All Rigid Metal Conduit shall be Hot Dip Galvanized Steel. No other material will be allowed.

3. All threads, whether manufactured or field threaded, shall be galvanized prior to assembly.

4. Use insulated sealing conduit hubs to fasten Rigid Metallic Conduit to boxes and panels. Utilize insulated grounding bushings to ground conduit to metal enclosure. Do not use insulated locknuts or other devices to terminate Rigid Metallic Conduit.

C. Fittings and Conduit Bodies: NEMA FB 1; galvanized steel.

2.02 **LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)**

A. Manufacturers:

1. AFC Cable Systems, Inc.

2. Carlon; a brand of Thomas & Betts Corporation.

3. Southwire Company.

4. Substitutions: Division 01 - Product Requirements.

B. Product Description: UL listed interlocked galvanized steel construction with PVC jacket.

C. Fittings: NEMA FB 1.

D. Utilize insulated grounding bushings to ground conduit to metal enclosure. Do not use insulated locknuts or other devices to terminate.

2.03 **ELECTRICAL METALLIC TUBING (EMT)**

A. Manufacturers:

1. Carlon; a brand of Thomas & Betts Corporation.

2. Western Tube and Conduit Corporation.

3. Wheatland Tube Company.

4. Substitutions: Division 01 - Product Requirements.

B. Product Description: ANSI C80.3; galvanized steel tubing.

C. Fittings and Conduit Bodies: NEMA FB 1; steel or zinc, compression or set screw with combination hex head and Phillips head type only.

D. Utilize insulated grounding bushings to ground conduit to metal enclosure. Do not use insulated locknuts or other devices to terminate.

2.04 **PVC COATED RIGID METAL CONDUIT AND FITTINGS**

A. Conduit, elbows, couplings, nipples and other fittings:

1. Rigid Galvanized Steel Conduit: ANSI C80.1.

2. PVC Coated Rigid Galvanized Steel Conduit: NEMA RN1.

3. Rigid Galvanized Steel conduit, fittings and conduit bodies shall meet the above requirements for Rigid Metal Conduit.

4. Provide and install according to NEC Article 344, II, (B), (1).

B. Utilize insulated grounding bushings to ground conduit. Do not use insulated locknuts or other devices to terminate.

C. Mounting hardware:

1. All pipe clamps, beam clamps and strut and pipe straps shall be coated, with similar requirements as the conduit and fittings, to adequately secure the coated conduit.

2. Threaded fasteners for mounting hardware shall be Type 304 stainless steel.

D. Coating of conduit, elbows, nipples, fittings, couplings and hardware:

1. PVC coated conduit and PVC coating will comply with NEMA Standard RN-1.

2. Conduit to be exterior coated with a PVC (polyvinylchloride) coated with 40 mils (0.040 inches) nominal thickness. The exterior and interior zinc surfaces shall remain intact and undisturbed during the preparation and application process.

3. All threaded items shall be shipped to the job site with thread protectors in place.

4. All components shall be treated with a secondary coating of polyurethane to protect the threads from corrosion prior to installation.

5. A bonded polyurethane coating, as indicated in NEMA RN-1, with a minimal thickness of no less than 2 mils and no greater than 7 mils shall be applied to the interior of all components.

6. All coatings shall allow for field bending of conduit without damage to the coating.

7. Each female threaded opening shall be provided with an integral PVC sleeve extension extending a minimum of either 2 inches or one pipe diameter beyond the end of the opening and having an inside diameter equal to the outside diameter of the uncoated conduit.

8. Conduit fittings and bodies for pulling and other applications shall have a seal at the non-conduit entrances with a "V" seal tongue-in-groove gasket with certification of seal performance.

9. Any damage to PVC coated conduit should be repaired using material supplied by the coated conduit manufacturer for that purpose.

2.05 **OUTLET BOXES**

A. Manufacturers:

1. Carlon; a brand of Thomas & Betts Corporation.

2. RACO; Hubbell.

3. Pass & Seymour; Legrand.

4. Substitutions: Division 01 - Product Requirements.

B. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.

1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.

2.06 **PULL AND JUNCTION BOXES**

A. Manufacturers:

1. Hoffman; a brand of Pentair Equipment Protection.

2. RACO; Hubbell.

3. Steel City.

4. Substitutions: Division 01 - Product Requirements.

B. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

PART 3 EXECUTION

3.01 **EXAMINATION**

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.02 **EXISTING WORK**

A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.

B. Remove concealed abandoned raceway to its source.

C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.

D. Extend existing raceway and box installations using materials and methods compatible with existing electrical installations, or as specified.

E. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.03 **INSTALLATION**

A. Install Work in accordance with State of New York standards.

B. Ground and bond raceway and boxes in accordance with “Grounding and Bonding for Electrical Systems”.

C. Fasten raceway and box supports to structure and finishes in accordance with “Hangers and Supports for Electrical Systems”.

D. Identify raceway and boxes in accordance with “Identification for Electrical Systems”.

E. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.04 **INSTALLATION – RACEWAY**

A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.

B. Arrange raceway supports to prevent misalignment during wiring installation.

C. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

D. Group related raceway; support using conduit rack. Construct rack using steel channel specified in “Hangers and Supports for Electrical Systems”; provide space on each for 25 percent additional raceways.

E. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports.

F. Do not attach raceway to ceiling support wires or other piping systems.

G. Construct raceway supports from steel channel specified in “Hangers and Supports for Electrical Systems”.

H. Route exposed raceway parallel and perpendicular to walls.

I. Route raceway installed above accessible ceilings parallel and perpendicular to walls.

J. Do not cross conduits in slab.

K. Maintain clearance between raceway and piping for maintenance purposes.

L. Penetrations of walls, floors or ceiling for conduits/raceways shall be done using machine coring devices. Penetrations greater than 1" shall not be drilled or saw cut. For all penetrations, sleeving of penetrations shall be installed. For penetrations of interior walls, floors or ceilings, patching of space around conduit shall be done with approved material.

M. Cut conduit square using saw or pipe cutter; de-burr cut ends.

N. Bring conduit to shoulder of fittings; fasten securely.

O. Install conduit hubs to fasten conduit to sheet metal and cast boxes in all locations.

P. Install no more than equivalent of three 90-degree bends between boxes or conduit bodies. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2-inch size.

Q. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.

R. Install suitable pull string or cord in each empty raceway except sleeves and nipples.

S. Install suitable caps to protect installed conduit against entrance of dirt and moisture. Use caps during installation to protect ends prior to connection to additional conduit, fittings, boxes, raceway or enclosures.

T. Panel, enclosure, cabinet and box terminations:

1. Use insulated bushings or insulated throats on hubs and terminations to terminate metallic conduits. Install insulating bushings and connectors prior to wiring pulling, do not split insulating bushings. Use insulated grounding bushings to ground metallic conduit and EMT to bonding or ground conductor. Do not ground with just conduit washers and connectors or hubs.

2. Use threaded connectors/terminations to terminate non-metallic conduits to boxes and panels. Prepare all openings for non-metallic conduits with approved sealant prior to placing and tightening connectors/terminations.

3.05 INSTALLATION – BOXES

A. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings or as specified in section for outlet device.

B. Adjust box location up to 10 feet prior to rough-in to accommodate intended purpose.

C. Orient boxes to accommodate wiring devices oriented as specified in "Wiring Devices".

D. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

E. Do not fasten boxes to ceiling support wires or other piping systems.

F. Support boxes independently of conduit.

3.06 **INTERFACE WITH OTHER PRODUCTS**

A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods in accordance with these specifications.

B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket.

3.07 **ADJUSTING**

A. Division 01 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust flush-mounting outlets to make front flush with finished wall material.

C. Install knockout closures in unused openings in boxes.

3.08 **CLEANING**

A. Division 01 - Execution and Closeout Requirements: Final cleaning.

B. Clean interior of boxes, enclosures and raceways to remove dust, debris, and other material.

C. Clean exposed surfaces and restore finish.

D. Clean interior of new and existing conduits using mandrel and wire brush for all conduit lengths where interior condition is unknown or cannot be verified.

END OF SECTION 26 05 33 – RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification for conductors.
3. Warning labels and signs.
4. Equipment identification labels.

1.02 RELATED DOCUMENTS

A. Common Work Results for Electrical Systems

1.03 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.04 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with ANSI Z535.4 for safety signs and labels.

D. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.05 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 PRODUCTS

2.01 POWER AND CONTROL RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.

2. Legend: Indicate voltage and system or service type.

C. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

2.02 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.

B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.03 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

2.04 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

B. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

2.05 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. 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

3.01 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

3.02 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30A, and 120V to ground: Identify with self-adhesive vinyl label. Install labels at 30-foot (10-m) maximum intervals.

B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Power.

C. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.

1. Comply with 29 CFR 1910.145.

2. Identify system voltage with black letters on an orange background.

3. Apply to exterior of door, cover, or other access.

D. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Indoor Equipment: Engraved, laminated acrylic or melamine label. 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.

b. Outdoor Equipment: Engraved, laminated acrylic or melamine label Stenciled legend 4 inches (100 mm) high.

c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.

d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

a. Enclosed switches.

END OF SECTION 26 05 53 – IDENTIFICATION OF ELECTRICAL SYSTEMS

SECTION 26 28 19 - ENCLOSED SWITCHES & CIRCUIT BREAKERS

PART 1 GENERAL

1.01 **SUMMARY**

A. Section Includes:

1. Non-fusible switches.

B. Related Sections:

1. Hangers and Supports for Electrical Systems.
2. Identification for Electrical Systems.
3. Grounding and Bonding for Electrical Systems.
4. Common Work Results for Electrical Systems.

1.02 **REFERENCE STANDARDS**

A. National Electrical Manufacturers Association:

1. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

1.03 **SUBMITTALS**

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Product Data:

1. Submit switch ratings and enclosure dimensions.
2. Submit catalog sheets showing ratings (including voltages, currents, HP and short circuit withstand currents), trip units, time current curves, dimensions, and enclosure details.

1.04 **CLOSEOUT SUBMITTALS**

A. Division 01 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents:

1. Record actual locations of enclosed switches.

1.05 **QUALIFICATIONS**

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 NONFUSIBLE SWITCH ASSEMBLIES

A. Manufacturers:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Siemens Power Transmission & Distribution, Inc.
4. Square D; by Schneider Electric.
5. Substitutions: Division 01 - Product Requirements.

B. Description:

1. For full load currents of any size: NEMA KS 1, Type HD enclosed load interrupter knife switch.

C. Locking Ability: Handle lockable in OFF or ON position.

D. All conductor connections to be rated at 75 degree C minimum

E. Switch Ratings:

1. Switch Rating: Horsepower rated for AC or DC as indicated on Drawings.
2. Short Circuit Current Rating: UL listed for 10,000, 65,000, or 200,000 rms symmetrical amperes as required on drawings.

F. Materials:

1. Furnish switches with entirely copper current carrying parts.

2.02 ENCLOSURES

A. Enclosure: UL 489, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel.

1. Outdoor Locations: NEMA 250, Type 3R with lockable cover or handle to prevent accessing switching device in either ON or OFF position.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install enclosed switches where indicated.

B. Install enclosed switches and circuit breakers plumb.

C. Height: 5 feet to operating handle.

D. Install engraved plastic nameplates. Engrave nameplates with the equipment served and the panel and circuit number supplying the switch.

E. Install grounding and bonding in accordance with requirements.

3.02 **CLEANING**

A. Division 01 - Execution and Closeout Requirements: Requirements for cleaning.

B. Clean existing enclosed switches to remain or to be reinstalled.

END OF SECTION 26 28 19 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

SECTION 26 41 13 - LIGHTNING PROTECTION FOR STRUCTURES

PART 1 GENERAL

1.01 **RELATED DOCUMENTS**

A. Grounding and Bonding for Electrical Systems.

B. Lightning protection components, including air terminals, conductors, bonding components, through-roof assemblies, mounting bases, connectors, and related accessories.

1.02 **SUMMARY**

A. Section includes lightning protection for structures, structure elements, and building rooftop components and equipment as indicated on the contract drawings.

B. The existing lighting protection system shall be tested prior to removal of the existing rooftop and equipment grounding/bonding components. Any non-conforming issues/readings shall be documented for discussion. The intent of this project is to replace the existing rooftop and equipment grounding/bonding system as it pertains to the roofing replacement as shown on the drawings. Any additional lightning protection system work required, in order to bring the system into conformance with NFPA780, is not included as part of this project.

1.03 **SUBMITTALS**

A. Product Data: For each type of product indicated.

B. Shop Drawings: For air terminals and mounting accessories.

1. Layout of the lightning protection system, along with details of the components to be used in the installation.

2. Include indications for use of raceway, data on how concealment requirements will be met, and calculations required by NFPA 780 for bonding of grounded and isolated metal bodies.

C. Qualification Data: For qualified Installer and manufacturer. Include data on listing or certification by UL.

D. For membrane roofs and materials, provide certification, signed by Contractor, that roof adhesive is approved by manufacturer of roofing material.

E. Field quality-control reports.

F. For existing systems:

1. Comply with recommendations in NFPA 780, Annex D, "Inspection and Maintenance of Lightning Protection Systems," for maintenance of the lightning protection system during installation.

2. Indicate areas of existing system to be removed, modified and/or installed including phasing of work coordinated with other contractors and trades.

3. Indicate where any new items or systems will be connected to existing system.

G. Other Informational Submittals: Plans showing dimensioned as-built locations, after substantial completion, of grounding features and actual layout, including the following:

1. Connections to equipment and other items.

2. Ground conductor routing

3. Through-roof penetration locations.

1.04 **QUALITY ASSURANCE**

A. Installer Qualifications: Certified by LPI as a Master Installer/Designer, trained and approved for installation of units required for this Project.

B. System Certificate:

1. UL Master Label or LPI System Certificate.

2. UL or LPI Letter of Finding verifying satisfactory installation for items installed.

3. UL Master Label Recertification.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 780, "Definitions" Article.

1.05 **COORDINATION**

A. Coordinate installation of lightning protection with installation of other building systems and components, including electrical wiring, supporting structures and building materials, metal bodies requiring bonding to lightning protection components, and building finishes.

B. Coordinate installation of air terminals attached to roof systems with roofing manufacturer and Installer.

C. Flashings of through-roof assemblies shall comply with roofing manufacturers' specifications.

PART 2 PRODUCTS

2.01 **SYSTEM**

A. Provide complete system upgrade for lightning protection of structures indicated on contract drawings.

B. Provide materials and devices as listed and rated, per UL and NFPA 780, for Class II applications. When any part of the structure requires Class II installation, the entire design will be Class II. [This is dependent on the classification of the existing lightning protection system. The new installation shall match the existing.]

C. Provide complete equipment, accessories and installation for protection against damage by lighting. Install in neat manner.

2.02 LIGHTNING PROTECTION SYSTEM COMPONENTS

A. Comply with NFPA 780. All materials and equipment must be as indicated in NFPA 780.

B. All devices used in the system must be UL 96 approved and listed for Lightning Protection applications.

C. 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. East Coast Lightning Equipment Inc.

2. ERICO International Corporation.

3. Harger.

4. Heary Bros. Lightning Protection Co. Inc.

5. Independent Protection Co.

6. Substitutions: Division 01 - Product Requirements

D. Roof-Mounted Air Terminals: NFPA 780 copper unless otherwise indicated.

1. Provide round or blunt tipped electrodes.

2. Provide air terminals extending not less than 12 in. above the object which they protect; proper base support for surface on which mounted; securely anchored to mounting surface.

3. Single-Membrane, Roof-Mounted Air Terminals: Designed specifically for single-membrane roof system materials. Comply with requirements in roofing Sections.

E. Main and Bonding Conductors: Copper.

F. Thru roof or structure assemblies:

1. Use UL Listed assemblies only.

2. Provide assemblies consistent with ground loop conductors.

3. Do not combine through roof or structure assemblies with electrodes or other connections. Proved separate assemblies for each.

4. Cover roof or penetrations in horizontal surfaces with rubber EPDM boot verified with roof/surface contractor as compatible with surface.

5. Seal all penetrations with grout or protective coating compatible with surface as verified with roof/surface contractor.

6. Seal all assembly openings with fire retardant material.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install lightning protection components and systems according to UL 96A and NFPA 780.

B. Cable Connections: Use crimped or bolted connections for all conductor splices and connections between conductors and other components. Use exothermic-welded connections in underground or concealed portions of the system.

C. Air Terminals on Single-Ply Membrane Roofing: Comply with roofing membrane and adhesive manufacturer's written instructions.

D. Bond extremities of vertical metal bodies to lightning protection components.

E. Install new, through-roof penetration components in same location as existing to avoid creating new roof penetrations. Bond to building steel below roof to provide a complete installation of the component. Coordinate installation with Roofing Contractor.

3.02 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.

3.03 CORROSION PROTECTION

A. Do not combine materials that can form an electrolytic couple that will accelerate corrosion in the presence of moisture unless moisture is permanently excluded from junction of such materials.

B. Use conductors with protective coatings where conditions cause deterioration or corrosion of conductors.

3.04 FIELD QUALITY CONTROL

A. Notify Architect at least 48 hours in advance of inspection before concealing lightning protection components.

B. Provide inspection, testing, and service of the existing lightning protection system prior to removal or modification of existing components.

C. After completion of the work, test and verify continuity of the lightning protection system and confirm that the system has been restored to proper operating condition.

D. UL Inspection: Meet requirements to obtain a UL Master Label for system.

E. LPI System Inspection: Meet requirements to obtain an LPI System Certificate.

END OF SECTION 26 41 13 – LIGHTNING PROTECTION FOR STRUCTURES

SECTION 274133 – EXISTING ANTENNA AND SATELLITE-DISH SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Existing roof-mounted antennas, satellite dishes, masts, supports, and associated communications cabling.
2. Field tracing and identification of existing antenna and satellite-dish systems of unknown status.
3. Removal of existing abandoned antennas, satellite dishes, masts, supports, and associated cabling where indicated.
4. Temporary disconnection, protection, relocation, storage, reinstallation, reconnection, and realignment of existing systems where indicated.
5. Extension or replacement of existing communications cabling where required to restore existing systems.
6. Grounding, bonding, identification, weatherproofing, and field testing associated with the Work of this Section.

1.2 DEFINITIONS

A. RF: Radio frequency.

B. Qualified Communications Contractor: A communications firm retained and paid by the Contractor and regularly engaged in the tracing, installation, alignment, testing, and service of radio-frequency, antenna, satellite, microwave, and public-safety communications systems of the types affected by the Work.

1.3 ACTION SUBMITTALS

A. Product Data: For replacement communications cable, connectors, weatherproofing materials, supports, grounding and bonding components, and other new products proposed for use.

B. Work Plan: Submit procedures for tracing, identification, shutdown coordination, temporary disconnection, protection, relocation, storage, reinstallation, alignment, and testing. Identify anticipated outages and proposed durations.

1.4 INFORMATIONAL SUBMITTALS

A. Existing-Condition Report: Include dated photographs and an inventory identifying each affected antenna, satellite dish, mast, support, cable, connector, grounding and bonding

connection, equipment location, orientation, azimuth, elevation, mounting height, cable routing, labeling, and visible condition.

B. Tracing Report: For each system of unknown status, document cable routing to the extent accessible, termination location, equipment served, status determination, individuals consulted, date of verification, and written disposition authorized by the Owner.

C. Preconstruction Test Report: Record operational status and measurable performance available for each active system before disconnection.

D. Field quality-control reports, including postinstallation results compared with preconstruction results.

1.5 CLOSEOUT SUBMITTALS

A. Record Documentation: Show final equipment locations, cable routing, identification, connections, removed items, replacement materials, and test results.

1.6 QUALITY ASSURANCE

A. Communications Technician Qualifications: The Contractor shall retain and pay for a qualified communications contractor to perform the tracing, identification, disconnection, reconnection, termination, alignment, and testing required by this Section. Provide Goosetown Communications or an approved equal with demonstrated experience with radio-frequency, antenna, satellite, microwave, and public-safety communications systems of the types affected by the Work.

B. Perform work without reducing the reliability, coverage, signal quality, or operational capability of existing systems to remain.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: System components shall be equipped and rated for the environments in which they are installed.

B. Exterior Environment: System components exposed to weather shall be rated for continuous operation under the existing exterior environmental conditions.

C. Maintain active public-safety, emergency-management, and other required communications systems in service except during authorized outages. Sequence Work to minimize outage duration.

D. If an existing system fails preconstruction testing or its condition prevents reliable testing, notify the Architect, Engineer, and Owner in writing before proceeding.

1.8 COORDINATION

A. Coordinate all antenna and satellite-dish Work with the Owner before disturbing existing equipment or systems.

B. Owner's Emergency Management Representative: Dave Hubeny, Director, Office of Emergency Management; telephone 607-777-3545; email dhubeny@binghamton.edu.

C. Qualified Communications Contractor: The Contractor shall retain and pay for Goosetown Communications, Rick DeGraw; telephone 607-722-7900; email RDeGraw@goosetown.com, or an approved equal, to perform the communications-system work required by this Section. Coordinate all work with Dave Hubeny before disturbing existing equipment or systems.

D. Do not remove, disconnect, relocate, interrupt, or alter an existing system until its status and required disposition have been confirmed in writing by the Owner.

E. Coordinate access, shutdowns, outages, sequencing, and restoration with the responsible system user. Do not begin an outage until authorization is received.

F. Coordinate roof penetrations, supports, ballasted mounts, flashing, sealants, and equipment relocation with the roofing and structural Work.

G. Coordinate antenna and mast bonding with the lightning-protection Work shown on the Drawings. Restore bonding connections affected by roofing operations.

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. Existing antennas, satellite dishes, masts, supports, cabling, connectors, grounding, bonding, and accessories indicated for reuse shall remain Owner's property.

B. Reuse existing components unless damaged, unsuitable for reuse, or specifically indicated for removal. Do not substitute equipment or alter system characteristics without written approval.

C. Components: Heavy-duty, industrial- or commercial-grade units suitable for the existing system and installation environment.

D. RF Impedance Matching: Signal-handling components, including connecting cable, shall have end-to-end impedance-matched signal paths. Match and balance devices used at connections where impedance mismatch cannot be avoided.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70 by a qualified testing agency and marked for intended location and application.

2.2 COMMUNICATIONS CABLE

A. Match the existing cable type, characteristic impedance, electrical performance, conductor construction, shielding, jacket rating, and connector compatibility unless otherwise approved by the Owner's communications representative.

B. Exterior Cable: Listed and marked for outdoor, sunlight-resistant, wet-location use and suitable for the temperature, moisture, and exposure conditions at the installation location.

C. Coaxial Cable: Match existing 50-ohm or 75-ohm impedance, as applicable. Existing cable observed includes Belden 1694A 75-ohm coaxial cable; verify each existing cable before selecting replacement material.

D. Balanced Twisted-Pair Cable: Match existing category and performance. Existing cable observed includes Category 5e outdoor cable; verify each existing cable before selecting replacement material.

E. Provide cable in continuous lengths where practicable. Do not install splices unless unavoidable and approved in writing.

2.3 CONNECTORS AND WEATHERPROOFING

A. Connectors shall match existing cable and equipment, maintain system impedance, be corrosion resistant, and be rated for exterior use where exposed.

B. Provide manufacturer-approved weatherproofing systems for exposed connectors and cable entries.

C. Cap all unused connectors and seal weathertight.

2.4 ANTENNA-SUPPORTING STRUCTURES

A. Reuse existing masts and supports indicated to remain. Replace damaged attachment hardware with corrosion-resistant hardware matching the existing installation and suitable for the supporting construction.

B. Ballasted supports temporarily moved for roofing Work shall be restored to their documented location and configuration. Coordinate ballast, protection pads, and allowable roof loading with the roofing and structural Work.

C. Do not install new penetrations or anchors into roofing, masonry, or structure without written approval.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls, roofs, equipment bases, roof supports, cable routes, penetrations, grounding, and bonding for suitable conditions where Work is to be performed.

B. Verify actual locations of existing cable connections before disconnecting or relocating equipment.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PRECONSTRUCTION DOCUMENTATION AND TRACING

A. Before disturbing equipment, uniquely identify each antenna, satellite dish, mast, support, and cable at the equipment and at accessible terminations.

B. The Contractor's qualified communications Contractor shall trace and identify systems indicated on the Drawings as having an unknown status. Coordinate tracing with Dave Hubeny and the Owner. Goosetown Communications or an approved equal shall perform this Work.

C. Do not disconnect or remove unknown equipment based solely on visual condition, a cut or unterminated cable, lack of labeling, or an assumption that it is abandoned.

D. Photograph and document cable connections, routing, slack, equipment orientation, azimuth, elevation, mounting height, support location, ballast arrangement, grounding, and bonding before disconnection or movement.

E. Obtain written confirmation of whether each unknown system is active, abandoned, or to remain before proceeding with its disposition.

3.3 REMOVAL OF ABANDONED SYSTEMS

A. Remove only equipment and cabling confirmed in writing as abandoned and indicated for removal.

B. Disconnect and remove abandoned antennas, satellite dishes, masts, supports, cabling, connectors, grounding and bonding components, and accessories back to the source or nearest accessible point approved by the Owner.

C. Where concealed abandoned cable cannot be removed without damaging construction to remain, remove it to the nearest accessible location, label it abandoned, cap it, and secure it after obtaining written approval.

D. Remove abandoned surface-mounted Category 5 and other communications cabling from the roof and exterior walls as indicated.

3.4 TEMPORARY DISCONNECTION, PROTECTION, AND RELOCATION

A. Perform authorized shutdowns only at the approved date and time. Verify the affected system with the responsible user immediately before disconnection.

B. Disconnect cabling at accessible connection points without damaging cable, connectors, equipment, or supports. Do not cut reusable cable unless specifically authorized.

C. For wall-mounted masts indicated to remain, leave masts and antennas in place where they do not interfere with roofing Work; disconnect, protect, and temporarily support associated cabling as required.

D. For ballasted roof-mounted supports, disconnect cabling and temporarily relocate the complete support only as required for roofing Work. Maintain the documented assembly, ballast configuration, and alignment.

E. Store temporarily removed equipment in a clean, dry, secure location approved by the Owner. Label each component and associated cable to ensure correct reinstallation.

3.5 INSTALLATION OF ANTENNA COMPONENTS

A. Restore each reusable system to its documented location, mounting configuration, orientation, azimuth, elevation, cable routing, grounding, and bonding.

B. Reconnect cables using compatible connectors and manufacturer-recommended tools. Extend cabling as necessary using cable matching the existing system.

C. Align antenna elements to achieve the documented signal level and quality. Realign directional antennas, microwave antennas, and satellite dishes to their documented target, azimuth, elevation, and polarization.
   1. Lightning Protection: Comply with requirements in Section 264113 "Lightning Protection for Structures."

D. Antenna Cable Entrance: Use weatherproof entrance fittings, and seal penetrations of the building envelope.

3.6 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.7 FIELD QUALITY CONTROL

A. Engage a qualified communications technician to perform the following tests and inspections:
   1. Align and adjust systems and pretest components, wiring, and functions to verify compliance with specified requirements.

2. Perform postinstallation testing at the same accessible test points and using the same methods used for preconstruction testing.
3. Verify cable continuity, conductor isolation, shield continuity, and absence of shorts or grounds not inherent to the system.
4. Perform signal-strength, received-signal, standing-wave-ratio, return-loss, link, or other system-specific measurements applicable to the affected equipment.
5. Verify operation with the responsible system user or Owner's communications representative.
6. Replace malfunctioning or damaged items.
7. Retest until satisfactory performance and conditions are achieved.

B. Prepare test and inspection reports.

END OF SECTION 274133

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

November 14, 2024

Mr. Joseph Cavino
Bell & Spina Architects
215 Wyoming Street
Syracuse, NY 13204
Ph. 315-488-0377

RE: Hazardous Materials Survey Report
Pre-Renovation
Asbestos, Lead-Based Paint, and PCB Caulk
SUNY Binghamton
West Gym, Administration & Health Services
Binghampton, NY
Ambient Project Number: 240807AC

Dear Mr. Cavino:

Ambient Environmental, Inc. is pleased to submit the attached Hazardous Materials Survey Report for asbestos, lead-based paint, and polychlorinated biphenyls (PCB), at the above-referenced site. This report includes the procedures and methodologies followed, analytical laboratory results, and applicable conclusions and recommendations.

Ambient appreciates the opportunity to serve Bell & Spina Architects and we look forward to working with you in the future. In the meantime, if you have questions or comments regarding the information in this report or if we can be of further assistance, please do not hesitate to contact us.

Sincerely,
Ambient Environmental, Inc.

Joella Viscusi
President

Kevin Jones
Inspection Technician
Asbestos License # 23-6LTTH-SHAB

Enclosure

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

HAZARDOUS MATERIALS SURVEY
Pre-Renovation
Asbestos, Lead-Based Paint, and PCB Caulk

SUNY Binghamton
West Gym, Administration & Health Services
Binghamton, NY

Survey Date(s): August 12, 13, and October 28, 2024

Prepared for:

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Ambient Project No. 240807AC

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1.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this project was to conduct a pre-renovation hazardous materials survey for asbestos, lead-based paint (LBP), and polychlorinated biphenyls (PCB) at SUNY Binghamton, West Gym, Administration Building and Health Services, Binghamton, NY (The Site). The areas inspected were limited to only the roofs and accessible areas on the interior at roof deck level, specifically to observe potential roof drain fittings/piping. Ambient Environmental, Inc. (Ambient) provided the following services for Bell & Spina Architects (Client) in accordance with Ambient proposal number 2024-04-0197.

Conduct a representative Hazardous Materials Survey in the identified building, which includes:

- Survey the site building.
- Identify accessible suspect asbestos-containing materials (ACMs) that were not previously tested using limited destructive means.
- Quantify ACMs, including material condition and location.
- Collect and analyze bulk samples of suspect friable and non-friable materials to eliminate suspect materials as asbestos containing.
- Conduct a limited lead-based paint inspection of the building with a Viken Detection Pb200e Lead Paint Analyzer.
- Collect and analyze bulk samples of potential PCB containing window/door caulk.

2.0 EXECUTIVE SUMMARY

The inspection was conducted by NYS licensed and AHERA trained asbestos inspectors and trained lead inspectors. The inspection involved visual examinations and sampling of suspect materials that may be impacted by planned renovation projects.

Inspection results revealed the following findings:

- **The renovation areas in the Administrative Building and West Gym do contain asbestos containing materials; Health Services Building does not contain asbestos**
- **The renovation areas in the Administrative Building, Health Services and West Gym do contain lead-based paint**
- **The renovation areas at the Health Services and West Gym do contain PCBs in caulking; Administrative Building does not contain PCBs in caulking**

Please see attachments and specific report sections for sample locations, type of materials and analytical results.

3.0 ASBESTOS-CONTAINING MATERIALS SURVEY

Ambient performed an asbestos-containing material survey for planned renovations at the subject property. Ambient examined previous reports, if available, to determine if adequate sampling was

performed in the work areas and collected additional samples that appeared to be deficient. New York State certified and AHERA trained asbestos inspectors conducted the asbestos survey of the area.

The building was visually inspected for the presence of any additional building materials in the path of renovation that are suspected to contain asbestos. Bulk samples of the newly identified suspect ACMs were collected and placed into individual containers for transport to a National Voluntary Laboratory Accreditation Program (NVLAP) and a New York State Department of Health Environmental Laboratory Approval Program (ELAP)-accredited laboratory for analysis. Materials visibly identified as non-asbestos (fibrous glass, foam rubber, wood, etc.) were not sampled. The asbestos survey consisted of three basic procedures: **1)** conducting a visual inspection of the structures; **2)** identifying homogeneous areas (HAs) of suspect surfacing, thermal system insulation, and miscellaneous materials; and **3)** sampling accessible, friable and non-friable suspect materials.

3.1 Sampling Protocol

3.1.1 Homogeneous Areas

Prior to collecting any samples, HAs were identified and listed to develop a sampling strategy. A homogeneous sampling area can be described as one or more areas of material that are similar in appearance and texture and that have the same installation date and function. The actual number of samples collected from each homogeneous sampling area may vary, based on the type of material and the professional judgment of the inspector.

3.1.2 Hazard Assessment Factors

From the list of suspect homogeneous materials, a physical assessment was performed for each material on the list. A physical assessment includes evaluating the condition, assessing the potential for disturbance, and determining the friability of each material. Friability is a term used to describe the ease in which a building material inherently lends itself to disturbance. By definition, "friable" materials are those that can be crumbled or reduced to powder by hand pressure when dry. Each material on the list was further classified into one of three categories, which have specific sampling requirements for each category.

Surfacing Materials:	Refers to spray-applied or troweled surfaces such as plaster ceilings and walls, fireproofing, textured paints, textured plasters, and spray-applied acoustical surfaces.
Thermal System Insulation:	Refers to insulation used to inhibit heat gain or loss on pipes, boilers, tanks, ducts, and various other building components.
Miscellaneous Materials:	Refers to friable and non-friable products and materials that do not fit in any of the above two categories such as resilient floor covering, baseboards, mastics, adhesives, roofing material, caulking, glazing, and siding. This category also contains wallboard and ceiling tile.

All confirmed ACMs were then assessed by their condition as good (intact), fair (damaged) or poor (significantly damaged) per Title 40 Code of Federal Regulations Part 763. Material with localized significant damage was also assessed as poor when observed.

3.1.3 Sampling Strategy

The asbestos inspection was conducted according to New York State Department of Labor Industrial Code Rule 56 guidelines using a minimum number of samples collected from each HA, which also meets the sampling requirement found in 29 CFR 1926.1101.

Sample collection depends on the category that the HA falls into and the amount of material present, as follows:

GUIDELINES FOR DETERMINING THE NUMBER OF SAMPLES TO TAKE		
HA CATEGORY	**HA SIZE**	**SAMPLES REQUIRED**
Surfacing Materials	<1,000 SF	3
	1,000-5,000 SF	5
	>5,000 SF	7 or more
Thermal System Insulation	No Stipulation	3+ (Must also sample all repair patches)
Miscellaneous Materials	No Stipulation	Per AHERA, these materials must be sampled "in a manner sufficient to determine whether or not they contain asbestos" typically 2-3 samples based upon inspector judgment.

If the analytical results indicated that all the samples collected per HA did not contain asbestos, then the HA (material) would be considered a non-ACM. However, if the analytical results of one or more of the samples collected per HA indicate that asbestos is present in quantities of greater than 1 percent asbestos by weight (as defined by EPA), all of the HA (material) would be treated as an ACM regardless of any other analytical results. Material, which can visually be determined to be non-asbestos (i.e., fibrous glass, foam rubber, etc.) by the accredited inspector are not required to be sampled.

Miscellaneous materials require adequately representative sampling, which is typically done by collecting from two to three samples per material. Inspectors typically rely on other survey observations such as the condition, friability, and quantity of material to determine what would be a sufficient number of samples to accurately evaluate the presence or absence of asbestos content.

Actual collection of a bulk asbestos sample involves physically removing a small piece of material and placing it in a marked, airtight container. Sample containers are marked with a unique identification number, which is also noted in the field notes.

3.1.4 Laboratory Analytical Results

Samples were sent to AmeriSci New York in New York, New York for analysis. AmeriSci is fully accredited for bulk sample analysis under the Environmental Laboratory Approval Program (ELAP) administered by the New York State Department of Health, (ELAP# 11480). AmeriSci is also accredited by the National Voluntary Laboratory Accreditation Program (NVLAP No. 200546-0) for both air and bulk sampling.

- *Friable Samples* – Friable suspect asbestos containing material samples were analyzed utilizing Method EPA/600/R-93/116 with New York State ELAP 198.1 revision to facilitate compliance with both AHERA and the New York State Department of Health polarized light microscopy (PLM) analytical techniques. All fibers observed were identified to determine whether or not they contained asbestos.
- *Non-Friable Samples* – Non-friable organically bound (NOB) suspect asbestos containing material samples were analyzed utilizing Method EPA/600/R-93/116 with New York State ELAP 198.6 and 198.4 revisions to facilitate compliance with both AHERA and the New York State Department of Health polarized light microscopy (PLM) and transmission electron microscopy (TEM) analytical techniques. These non-friable organically bound samples must be weighed to record initial sample weights, then subjected to muffle furnace and acid bath sample preparation to eliminate the organic constituents. If the remaining inorganic sample residue is 1% or less of the original sample weight, the sample is considered a non-asbestos containing material. If the remaining inorganic sample residue is greater than 1% of the original sample weight then the sample must be analyzed using either PLM or TEM analytical techniques to determine that the sample is an asbestos containing material (positive) or TEM to prove that the sample is a non-asbestos containing material (negative). A non-friable organically bound sample must be proven a non-asbestos containing material utilizing the NYS ELAP 198.4 TEM test method to be in compliance with the New York state Department of Health.

3.2 Asbestos Containing Material Results

The results of the asbestos survey conducted at the subject property can be found in Attachment A.

The building survey included limited destructive sampling for "hidden" materials. Therefore, the results of this survey may not be inclusive of <u>all</u> asbestos containing material that may be present in the pathway of demolition. If, during the course of renovation, any suspect material is discovered that is not listed on the table in Attachment A it must be treated as asbestos containing material and handled appropriately or sampled by an inspector and analyzed according to NYS and EPA regulations.

One (1) copy of the results of the building/structure asbestos survey shall be immediately transmitted by the building/structure owner as follows:

- One (1) copy of the completed asbestos survey shall be sent by the owner or their agent to the local government entity charged with issuing a permit for such demolition, renovation, remodeling or repair work under applicable State or local laws.
- The completed asbestos survey for controlled demolition (as per Subpart 56-11.5) or pre-demolition asbestos projects shall also be submitted to the appropriate Asbestos Control Bureau district office.
- The completed asbestos survey shall be kept on the construction site with the asbestos notification and variance, if required, throughout the duration of the asbestos project and any associated demolition, renovation, remodeling or repair project.

4.0 LEAD-BASED PAINT SURVEY

Ambient conducted a limited lead-based paint (LBP) investigation of building components which will be affected by proposed renovation work. The purpose of this investigation was to assess if building components contain actionable quantities of lead-based paint.

The U.S Environmental Protection Agency (EPA) and U.S. Department of Housing and Urban Development (HUD) has established a definition of lead-based paint as a paint or other surface coating that contains lead equal to or greater than 1.0 mg/cm^2 or 0.5% by weight (equivalent units are: 5,000 µg/g, 5,000 mg/kg, or 5,000 ppm by weight). Surface coatings include paint, shellac, varnish, or any other coating, including wallpaper, which covers painted surfaces. A limited inspection for lead-based paint using XRF instrumentation was conducted to determine if lead coated surfaces were affected. This inspection was not in full compliance with HUD guidelines.

4.1 Sampling Protocol

4.1.1 Methodology

Testing was performed using X-Ray Fluorescence in situ analysis (XRF) of painted construction materials. Ambient utilized the Pb200e analyzer manufactured by Viken Detection for this survey.

The Pb200e Lead Paint Analyzer is a complete lead paint analysis system that quickly, accurately, and non-destructively measures the concentration of LBP on surfaces. The Pb200e relies on the measurement of the K-shell X-rays to determine the amount of lead present in the painted surface. K-shell X-rays can penetrate many layers of paint and allow a measurement of the lead content of paint to be made without being significantly affected by the thickness or number of layers of paint on the surface of the sample.

The Pb200e has the ability to analyze and compute corrections for the differences in the energy spectrums relating to different substrates. This analysis of the energy spectrum means that the lead paint reading displayed on the instrument already accounts for any substrate effects and correction is not required by the operator. The Pb200e's field of view is limited to a depth of 3/8", deep enough to handle virtually all painted surfaces, but not prone to detect lead objects located behind the surface.

There are two measurement modes of operation in the Pb200e analyzer namely the "Action Level Mode" and the "Extended Reading Mode. In the "Action Level" mode, the analyzer automatically adjusts the measurement time to be the least time that is needed to make a definitive measurement with a 95% confidence level (2-sigma). The Pb200e analyzer will finish a measurement once the 2-sigma confidence level is achieved and the data is statistically meaningful. This time period for conclusive measurements is typically between 1 to 5 seconds but can extend to a measurement of 60 seconds depending on the action level for abatement. Ambient utilized the Pb200e in the "Action Level" mode for the testing performed.

Upon arrival at the job site and once every four hours or after the day’s paint testing work was completed, a "validation test" was performed to assure that the instrument was operating

properly. The "validation test" includes taking a series of three test measurements on the NIST Paint Film Standard (SRM No. 2579) as required by the instrument's PCS. The individual readings and an average of the three readings were recorded and compared to the standards. In all cases the instrument was functioning within the standard deviation as defined by the manufacturer and the PCS. All validation readings are recorded in the XRF in the order in which they were taken at the site. If for any reason the XRF does not pass the quality control procedures, it is Ambient's policy to replace that instrument with an XRF that passes the above criteria for calibration.

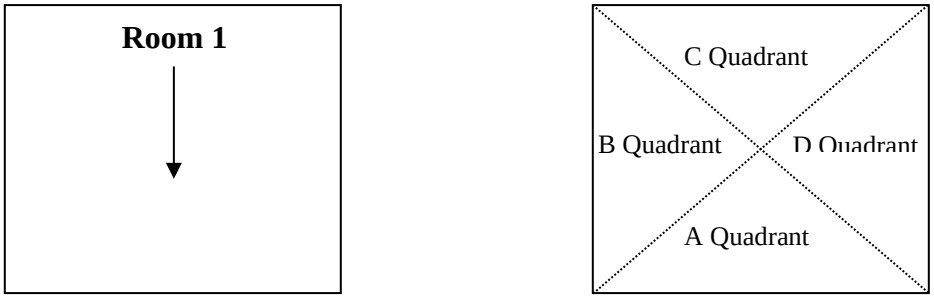
The parameters used to interpret XRF results are outlined in the HUD Guidelines and the Performance Characteristics Sheet (PCS) in Attachment B. According to the PCS, each XRF result is classified as positive for LBP if the result is greater than or equal to 1.0 mg/cm2 or negative for LBP if the result is below 1.0 mg/cm2.

When measurable amounts of lead are reported in the XRF result, the paint is classified by OSHA as a lead containing material.

4.1.2 Strategy

Location identifiers (reading numbers) were assigned to each room component. Each location sampled has a unique number. The associated sample results will be listed by room number, room location, room name, location in the space and description of material sampled. By convention a sample location is assigned a letter designator for each of the four walls. This divides the space into four equal quadrants, each quadrant consisting of a wall, portion of the floor and a portion of the ceiling. Please see Diagram 1. These letter designators are A, B, C and D. On the diagrams provided, the letter designators are marked for each of the quadrants. In this fashion the sampled space, location in the space and the description of the material sampled can be identified on the attached drawings and associated results table.

Diagram 1



4.2 Lead-Based Paint Results

The results of the lead-based paint survey conducted at the subject property can be found in Attachment B.

4.3 Recommendations

Any contractor disturbing a lead-based or lead containing paint is directed to comply with all applicable laws and regulations governing the disturbance of lead-based or lead containing materials including but not limited to *Occupational Safety and Health Administration (OSHA)* standards including *Construction Lead Standard 29 CFR 1926.62*. Air monitoring for employee exposures should be performed in accordance with the National Institute for Occupational Safety and Health (NIOSH) 7300 Method or equivalent. As an alternative to air monitoring, the contractor may provide objective data per 29 CFR 1926.62 Section (d)(3)(iv). The contractor shall employ work practices and controls to prevent the occurrence of lead contamination at the Site.

5.0 POLYCHLORINATED BIPHENYL (PCB) SURVEY

Ambient sampled suspect PCB containing caulk that could be impacted by the upcoming renovation and analyzed it for Polychlorinated Biphenyl (PCB) content.

The PCB survey involved a visual examination and sampling of caulk materials that may be impacted by the planned renovation projects. PCB, or Polychlorinated Biphenyl, was used in various products including caulking material from 1930 to approximately 1979 when PCB were banned by Congress. PCB are listed to be Probable Human Carcinogens by the ATSDR (Agency for Toxic Substances and Disease Registry), the National Cancer Institute and the World Health Organization.

PCB-containing materials are regulated under the Toxic Substances Control Act (TSCA) and 40 CFR 761 and are considered a regulated hazardous material at concentrations equal to or greater than 50 ppm (50,000 ppb). PCB must be segregated from construction debris and then be taken to a hazardous waste landfill in accordance with U.S. EPA regulations under the Toxic Substances Control Act (40 CFR761.62) and NYSDEC hazardous waste regulations (6NYCRR370-373). PCB can also be incinerated at an approved facility. There are also alternative methods for PCB destruction.

Bulk samples were collected and submitted to Schneider Labs, 2512 W. Cary Street, Richmond, Virginia. The samples were analyzed using EPA SW-846 Method 8082 PCB by Gas Chromatography.

5.1 Polychlorinated Biphenyls (PCB) Results

The results of the PCB survey conducted can be found in Attachment C.

6.0 ASSUMPTIONS, LIMITATIONS, AND OTHER CONCERNS

The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were noted during the inspection of the subject property.

- Ambient's selection of sample locations and frequency of sampling was based on observations and the assumption that like materials in the same area are homogeneous in content.

- Refer to Section 1.0 Purpose and Scope of Services of this report to see clarification of survey locations that were in our scope of work.
- No electrical equipment, wiring, or other electrical components related to the roof replacement were inspected as the building power was live at the time of the survey. These systems may contain asbestos.
- Ambient observed to the best of their ability the inside of ductwork, piping, and other building mechanical systems relative to the roofing replacement, but destruction or disassembly is required to gain complete access. These items may contain asbestos.
- The lead-based paint inspection was limited to representative accessible painted surfaces that are expected to be impacted by the planned renovation or demolition as of the date of the inspection. Representative locations were selected based on available information including construction and renovation history, conditions observed during the paint inspection and inspector safety when accessing the surfaces. OSHA requires the use of lead safe work practices to protect employees who are disturbing any lead containing material including, but not limited to, components coated with lead-based paint or varnish.
- Although there was asbestos containing Thermal System Insulation (TSI) and pipe insulation found and identified, there may be additional TSI, or pipe insulation found in unseen cavities or wet walls. A reasonable attempt was made to identify all TSI without performing full demolition.
- Ambient performed limited coring/destructive sampling of roofs during the inspection. However, only full demolition would reveal "hidden" asbestos containing materials. Care should be taken during renovation of the building.
- This report reflects the conditions found at the date and time of the inspections. Conditions of the area may change due to external events or forces. Re-inspection of the area may be required prior to the start of any work if an extended period of time has passed or if disturbances have occurred.
- All locations on drawings are approximate and all quantities are estimated. Any contractor or other user of this report is required to physically visit the site to verify all measurements and confirm the quantities of materials to be removed, to be bid for removal, or for any other purpose.

All construction personnel, as well as individuals who have access to locations where ACM exists, should be informed of its presence and the proper work practices in these areas. Conspicuous labeling of all ACM is suggested to ensure personnel is adequately informed. Personnel should be informed not to rest, lean or store material or equipment on or near these surfaces and not to cut, saw, drill, sand or disturb ACM. All removal, disturbance and repair of ACM should be performed in compliance with Title 12 NYCRR Part 56 by persons properly trained to handle ACM. Facility custodial and maintenance personnel should receive training commensurate with their work activities; as defined in 29 CFR 1910.1001.
The report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos or lead abatement contractors in locating ACM. Under no circumstances is the report to be utilized as a bidding document or as a project specification document since it does not have all the components required to serve as an Asbestos Project Design document or an Abatement Workplan.

Our professional services have been performed, our findings obtained, and our conclusions and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

Ambient inspected and sampled materials, which were observable and accessible to the survey team. It is possible, however, that additional suspect materials may exist within interstitial spaces (i.e. underground chases, plenums, wall cavities, beneath pavement/asphalts pathways, etc.), which were not accessible or not made accessible and as a result, not noted in this report.

If questions arise regarding asbestos in materials/locations that were not tested by Ambient, then additional survey services should be procured to test these locations. Ambient makes no representation or warranty concerning the standards and specifications provided in applicable regulations. Any materials that have not been tested and/or found during future investigation must be assumed positive for asbestos, lead-based paint and/or PCB (if applicable).

ATTACHMENT A

ASBESTOS RESULTS AND ASBESTOS LABORATORY ANALYSIS REPORT WITH CHAIN OF CUSTODY DOCUMENTATION

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – ADMINISTRATION BUILDING
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
01	01	White Paint (S)	Tower Roof Screen Wall	N	D	N/A	N/A	NAD
01	02	White Paint (S)	Tower Roof Screen Wall	N	D	N/A	N/A	NAD
01	03	White Paint (S)	Tower Roof Screen Wall	N	D	N/A	N/A	NAD
01	04	White Paint (S)	Tower Roof Screen Wall	N	D	N/A	N/A	NAD
01	05	White Paint (S)	Tower Roof Screen Wall	N	D	N/A	N/A	NAD
02	01	Black EPDM (M)	Tower Roof Layer1	N	G	N/A	N/A	NAD
02	02	Black EPDM (M)	Lower Roof Layer 1	N	G	N/A	N/A	NAD
03	01	Black Isoboard Facing (M)	Tower Roof Layer 2	N	G	N/A	N/A	NAD
03	02	Black Isoboard Facing (M)	Lower Roof Layer 2	N	G	N/A	N/A	NAD
03	03	Black Isoboard Facing (M)	Canopy Roof Layer 2	N	G	N/A	N/A	NAD
04	01	Built-up Vapor Barrier (M)	Penthouse Roof Layer 3	N	G	N/A	N/A	NAD
04	02	Built-up Vapor Barrier (M)	Penthouse Roof Layer 3	N	G	N/A	N/A	NAD
05	01	Built-up Vapor Barrier (M)	Tower Roof Layer 3	N	G	N/A	N/A	NAD
05	02	Built-up Vapor Barrier (M)	Tower Roof Layer 3	N	G	N/A	N/A	NAD
06	01	Built-up Vapor Barrier (M)	Lower Roof Layer 3	N	G	N/A	N/A	NAD
06	02	Built-up Vapor Barrier (M)	Lower Roof Layer 3	N	G	N/A	N/A	NAD
07	01	Built-up Vapor Barrier (M)	Canopy Roof Layer 3	N	G	N/A	N/A	NAD
07	02	Built-up Vapor Barrier (M)	Canopy Roof Layer 3	N	G	N/A	N/A	NAD
08	01	Concrete Deck (M)	Tower Roof Layer 4	F	G	N/A	N/A	NAD

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – ADMINISTRATION BUILDING
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
08	02	Concrete Deck (M)	Lower Roof Layer 4	F	G	N/A	N/A	NAD
09	01	Brick (M)	Exterior Wall	F	G	N/A	N/A	NAD
09	02	Brick (M)	Exterior Wall	F	G	N/A	N/A	NAD
10	01	Brick Mortar (M)	Exterior Wall	F	G	N/A	N/A	NAD
10	02	Brick Mortar (M)	Exterior Wall	F	G	N/A	N/A	NAD
11	01	Pitch Pocket Sealer (M)	Tower Roof	N	G	N/A	N/A	NAD
11	02	Pitch Pocket Sealer (M)	Tower Roof	N	G	N/A	N/A	NAD
12	01	Black EPDM Seam seal Caulk (M)	Penthouse Roof	N	G	N/A	N/A	NAD
12	02	Black EPDM Seam seal Caulk (M)	Tower Roof	N	G	N/A	N/A	NAD
13	01	Black Term bar Caulk (M)	Tower Roof	N	G	N/A	N/A	NAD
13	02	Black Term bar Caulk (M)	Tower Roof	N	G	N/A	N/A	NAD
14	01	Black Flashing Caulk (M)	Lower Roof	N	G	N/A	N/A	NAD
14	02	Black Flashing Caulk (M)	Lower Roof	N	G	N/A	N/A	NAD
15	01	Gray EPDM Seam seal Caulk (M)	Lower Roof	N	G	N/A	N/A	NAD
15	02	Gray EPDM Seam seal Caulk (M)	Lower Roof	N	G	N/A	N/A	NAD
16	01	White Window Caulk (M)	Lower Roof Metal Panel below Window	N	G	6.5 SF	Tower Windows	NAD [1]
16	02	White Window Caulk (M)	Lower Roof Metal Panel below Window	N	G			1.4% Chrysotile
N/A		Roof Drain Mudded Fittings	N/A	F	G	9 EA	Tower Roofs and Lower Roofs	Assumed

(T=TSI; S=Surfacing; M=Misc)

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – ADMINISTRATION BUILDING
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

NAD = No asbestos detected
NA/PS = Not analyzed/positive stop

(1) This sample is part of a homogenous group of samples; therefore, it should be considered to be an asbestos containing material.

SF = Square Foot
EA=Each

* Quantities are estimates only and should be field verified.
* Quantities and homogenous locations only reflect renovation areas and do not represent other areas throughout the building.

Note: Refer to Assumptions & Limitations Section of the Report.

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: 2126798600 FAX: 2126793114

August 27, 2024

Ambient Environmental, Inc.
Attn: Joella Viscusi
828 Washington Avenue
Albany, NY 12203

RE: Ambient Environmental, Inc.
Job Number 224083055
P.O. #240807AC
240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Dear Joella Viscusi:

Enclosed are the results of Asbestos Analysis - Bulk Protocol of the following Ambient Environmental, Inc. samples, received at AmeriSci on Tuesday, August 20, 2024, for a 5 day turnaround:

01-01, 01-02, 01-03, 01-04, 01-05, 02-01, 02-02, 03-01, 03-02, 03-03, 04-01, 04-02, 05-01, 05-02, 06-01, 06-02, 07-01, 07-02, 08-01, 08-02, 09-01, 09-02, 10-01, 10-02, 11-01, 11-02, 12-01, 12-02, 13-01, 13-02, 14-01, 14-02, 15-01, 15-02, 16-01, 16-02

The 36 samples, placed in Zip Lock Bag, were shipped to AmeriSci via Fed Ex. Ambient Environmental, Inc. requested ELAP PLM/TEM analysis of these samples.

The results of the analyses which were performed following ELAP Protocols 198.1 PLM Friable and/or 198.6 for PLM NOB. ELAP Protocol 198.4 TEM NOB guidelines are presented within the Summary Table of this report. The presence of matrix reduction data in the Summary Table normally indicates an NOB sample. For NOB samples the individual matrix reduction, combined PLM and TEM analysis results are listed in the Summary Bulk Asbestos Analysis Results in Table I. Complete PLM results for individual samples are presented in the PLM Bulk Asbestos Report. Samples near 1% asbestos may be analyzed by EPA 400 pt ct method (EPA 600-M4-82-020). This combined report relates ONLY to sample analysis expressed as percent composition by weight and percent asbestos. This report must not be used to claim product endorsement or approval by these laboratories, NVLAP, ELAP or any other associated agency. This report must not be reproduced, except in full without the written approval of the laboratory. This report may contain specific data not covered by NVLAP or ELAP accreditations respectively, if so identified in relevant footnotes.

AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

John P. Koubiadis
Asb. Mgr. | Authorized Signatory

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

PLM Bulk Asbestos Report

Ambient Environmental, Inc.
Attn: Joella Viscusi
828 Washington Avenue

Albany, NY 12203

Date Received 08/20/24
Date Examined 08/26/24
ELAP # 11480
AmeriSci Job # 224083055
P.O. #
Page 1 **of** 7

RE: 240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
01-01 01	224083055-01 **Location:** Tower Roof Screen Wall - White Paint	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Lt. Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 44.3%			
01-02 01	224083055-02 **Location:** Tower Roof Screen Wall - White Paint	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Lt. Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 43.7%			
01-03 01	224083055-03 **Location:** Tower Roof Screen Wall - White Paint	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Lt. Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 49%			
01-04 01	224083055-04 **Location:** Tower Roof Screen Wall - White Paint	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Lt. Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 39.1%			
01-05 01	224083055-05 **Location:** Tower Roof Screen Wall - White Paint	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Lt. Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 44.3%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
02-01 02	224083055-06 **Location:** Tower Roof Layerl - Black EPDM	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black/Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 6.3%			
02-02 02	224083055-07 **Location:** Lower Roof Layer 1 - Black EPDM	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black/Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 4.6%			
03-01 03	224083055-08 **Location:** Tower Roof Layer 2 - Black Isoboard Facing	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Black/Gray, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 90%, Fibrous glass 3%, Non-fibrous 7%			
03-02 03	224083055-09 **Location:** Lower Roof Layer 2 - Black Isoboard Facing	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Black/Tan, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 70%, Fibrous glass 5%, Non-fibrous 25%			
03-03 03	224083055-10 **Location:** Canopy Roof Layer 2 - Black Isoboard Facing	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Black/Yellow, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 80%, Fibrous glass 5%, Non-fibrous 15%			
04-01 04	224083055-11 **Location:** Penthouse Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 1.9%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
04-02 04	224083055-12 **Location:** Penthouse Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 11.2%			
05-01 05	224083055-13 **Location:** Tower Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 1.5%			
05-02 05	224083055-14 **Location:** Tower Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 0.5%			
06-01 06	224083055-15 **Location:** Lower Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 0.7%			
06-02 06	224083055-16 **Location:** Lower Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 0.5%			
07-01 07	224083055-17 **Location:** Canopy Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 5.7%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
07-02 07	224083055-18 **Location:** Canopy Roof Layer 3 - Built-Up Vapor Barrier	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21.1%			
08-01 08	224083055-19 **Location:** Tower Roof Layer 4 - Concrete Deck	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Cellulose Trace, Non-fibrous 100%			
08-02 08	224083055-20 **Location:** Lower Roof Layer 4 - Concrete Deck	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Cellulose Trace, Non-fibrous 100%			
09-01 09	224083055-21 **Location:** Exterior Wall - Brick	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Brick Red, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
09-02 09	224083055-22 **Location:** Exterior Wall - Brick	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Brick Red, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
10-01 10	224083055-23 **Location:** Exterior Wall - Brick Mortar	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
10-02 10	224083055-24 **Location:** Exterior Wall - Brick Mortar	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 08/26/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
11-01 11	224083055-25 **Location:** Tower Roof - Pitch Pocket Sealer	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 2.1%			
11-02 11	224083055-26 **Location:** Tower Roof - Pitch Pocket Sealer	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 1.8%			
12-01 12	224083055-27 **Location:** Penthouse Roof - Black EPDM Seamseal Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 0.5%			
12-02 12	224083055-28 **Location:** Tower Roof - Black EPDM Seamseal Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.5%			
13-01 13	224083055-29 **Location:** Tower Roof - Black Termbar Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 11.4%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
13-02 13	224083055-30 **Location:** Tower Roof - Black Termbar Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 11.5%			
14-01 14	224083055-31 **Location:** Lower Roof - Black Flashing Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 34.2%			
14-02 14	224083055-32 **Location:** Lower Roof - Black Flashing Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 34.1%			
15-01 15	224083055-33 **Location:** Lower Roof - Gray EPDM Seamseal Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Gray/Black, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 7.1%			
15-02 15	224083055-34 **Location:** Lower Roof - Gray EPDM Seamseal Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: Gray/Black, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 2.3%			
16-01 16	224083055-35 **Location:** Lower Roof Metal Panel Below Window - White Window Caulk	***No***	NAD (by NYS ELAP 198.6) by Valeriu Voicu on 08/26/24
Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 30.2%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
16-02 16	224083055-36 **Location:** Lower Roof Metal Panel Below Window - White Window Caulk	***Yes***	Trace (<0.25 % pc)[1] (ELAP 400 PC) by Valeriu Voicu on 08/26/24

Analyst Description: White/Silver, Heterogeneous, Non-Fibrous, Bulk Material
Asbestos Types: Chrysotile <0.25 % pc
Other Material: Non-fibrous 20.3%

Reporting Notes:

(1) Sample prepared for analysis by ELAP 198.6 method

Analyzed by: Valeriu Voicu
Date: 8/26/2024

Reviewed by: Hongyan Ran

*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis using Olympus, Model BH-2 Pol Scope, Microscope, Serial #: 229915, by Appd E to Subpt E, 40 CFR 763 quantified by either CVES or 400 pt ct as noted for each analysis (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite, or ELAP 198.6 for NOB samples, or EPA 400 pt ct by EPA 600-M4-82-020 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054, NJ Lab ID #NY031.

_____END OF REPORT_____

Client Name: Ambient Environmental, Inc.

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	01-01	01	0.260	50.0	5.7	44.3	NAD	NAD
Location: Tower Roof Screen Wall - White Paint								
02	01-02	01	0.318	48.8	7.6	43.7	NAD	NAD
Location: Tower Roof Screen Wall - White Paint								
03	01-03	01	0.378	44.7	6.3	49.0	NAD	NAD
Location: Tower Roof Screen Wall - White Paint								
04	01-04	01	0.316	53.0	7.9	39.1	NAD	NAD
Location: Tower Roof Screen Wall - White Paint								
05	01-05	01	0.312	49.2	6.5	44.3	NAD	NAD
Location: Tower Roof Screen Wall - White Paint								
06	02-01	02	0.252	91.9	1.8	6.3	NAD	NAD
Location: Tower Roof Layerl - Black EPDM								
07	02-02	02	0.304	90.8	4.7	4.6	NAD	NAD
Location: Lower Roof Layer 1 - Black EPDM								
08	03-01	03	----	----	----	----	NAD	NA
Location: Tower Roof Layer 2 - Black Isoboard Facing								
09	03-02	03	----	----	----	----	NAD	NA
Location: Lower Roof Layer 2 - Black Isoboard Facing								
10	03-03	03	----	----	----	----	NAD	NA
Location: Canopy Roof Layer 2 - Black Isoboard Facing								
11	04-01	04	0.486	94.0	4.1	1.9	NAD	NAD
Location: Penthouse Roof Layer 3 - Built-Up Vapor Barrier								
12	04-02	04	0.545	71.1	17.7	11.2	NAD	NAD
Location: Penthouse Roof Layer 3 - Built-Up Vapor Barrier								
13	05-01	05	0.455	95.3	3.3	1.5	NAD	NAD
Location: Tower Roof Layer 3 - Built-Up Vapor Barrier								
14	05-02	05	0.535	97.4	2.1	0.5	NAD	NAD
Location: Tower Roof Layer 3 - Built-Up Vapor Barrier								
15	06-01	06	0.359	98.7	0.6	0.7	NAD	NAD
Location: Lower Roof Layer 3 - Built-Up Vapor Barrier								
16	06-02	06	0.511	98.6	0.9	0.5	NAD	NAD
Location: Lower Roof Layer 3 - Built-Up Vapor Barrier								

See Reporting notes on last page

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
17	07-01	07	0.844	33.0	61.3	5.7	NAD	NAD
Location: Canopy Roof Layer 3 - Built-Up Vapor Barrier								
18	07-02	07	0.396	75.8	3.2	21.1	NAD	NAD
Location: Canopy Roof Layer 3 - Built-Up Vapor Barrier								
19	08-01	08	----	----	----	----	NAD	NA
Location: Tower Roof Layer 4 - Concrete Deck								
20	08-02	08	----	----	----	----	NAD	NA
Location: Lower Roof Layer 4 - Concrete Deck								
21	09-01	09	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick								
22	09-02	09	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick								
23	10-01	10	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick Mortar								
24	10-02	10	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick Mortar								
25	11-01	11	0.433	65.3	32.5	2.1	NAD	NAD
Location: Tower Roof - Pitch Pocket Sealer								
26	11-02	11	0.349	50.8	47.4	1.8	NAD	NAD
Location: Tower Roof - Pitch Pocket Sealer								
27	12-01	12	1.119	89.4	10.1	0.5	NAD	NAD
Location: Penthouse Roof - Black EPDM Seamseal Caulk								
28	12-02	12	0.203	48.2	48.3	3.5	NAD	NAD
Location: Tower Roof - Black EPDM Seamseal Caulk								
29	13-01	13	0.246	54.9	33.7	11.4	NAD	NAD
Location: Tower Roof - Black Termbar Caulk								
30	13-02	13	0.181	54.7	33.8	11.5	NAD	NAD
Location: Tower Roof - Black Termbar Caulk								
31	14-01	14	0.276	61.0	4.8	34.2	NAD	NAD
Location: Lower Roof - Black Flashing Caulk								
32	14-02	14	0.338	59.9	6.0	34.1	NAD	NAD
Location: Lower Roof - Black Flashing Caulk								

See Reporting notes on last page

Client Name: Ambient Environmental, Inc.

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY, Administration Building, Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
33	15-01	15	0.417	35.4	57.5	7.1	NAD	NAD
Location:	Lower Roof - Gray EPDM Seamseal Caulk							
34	15-02	15	0.413	29.5	68.2	2.3	NAD	NAD
Location:	Lower Roof - Gray EPDM Seamseal Caulk							
35	16-01	16	0.075	55.7	14.1	30.2	NAD	NAD
Location:	Lower Roof Metal Panel Below Window - White Window Caulk							
36	16-02	16	0.214	37.3	42.4	18.9	Chrysotile <0.25	Chrysotile 1.4
Location:	Lower Roof Metal Panel Below Window - White Window Caulk							

Analyzed by: Hongyan Ran
Date: 8/26/2024



Reviewed by: Hongyan Ran



**Quantitative Analysis (Semi/Full); Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or NYSDOH ELAP 198.1 for New York friable samples or NYSDOH ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or NYSDOH ELAP 198.4; for New York samples). Analysis using Hitachi, Model H600-Noran 7 System, Microscope, Serial #: 600-27-6. NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = <1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of <0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, NJ Lab ID #NY031.

Warning Note: PLM limitation, only TEM will resolve fibers <0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).

Ambient Environmental, Inc.
Comprehensive Building Science Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	Administration Building	Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
01	01	White Paint (S)	Tower Roof Screen Wall	N	D			
01	02	White Paint (S)	Tower Roof Screen Wall	N	D			
01	03	White Paint (S)	Tower Roof Screen Wall	N	D			
01	04	White Paint (S)	Tower Roof Screen Wall	N	D			
01	05	White Paint (S)	Tower Roof Screen Wall	N	D			
02	01	Black EPDM (S)	Tower Roof Layer1	N	G			
02	02	Black EPDM (S)	Lower Roof Layer 1	N	G			
03	01	Black Isoboard Facing (M)	Tower Roof Layer 2	N	G			
03	02	Black Isoboard Facing (M)	Lower Roof Layer 2	N	G			
03	03	Black Isoboard Facing (M)	Canopy Roof Layer 2	N	G			
04	01	Built-up Vapor Barrier (M)	Penthouse Roof Layer 3	N	G			
04	02	Built-up Vapor Barrier (M)	Penthouse Roof Layer 3	N	G			
05	01	Built-up Vapor Barrier (M)	Tower Roof Layer 3	N	G		2240830555	
05	02	Built-up Vapor Barrier (M)	Tower Roof Layer 3	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I	8/19/24	16:00		8/20/24	11:40
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By:	8/26/24	10:13
b. QC by:	8/26/24	11:37 AM

Comments:

Ambient Environmental, Inc.
Comprehensive Building Science Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	Administration Building	Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
06	01	Built-up Vapor Barrier (M)	Lower Roof Layer 3	N	G			
06	02	Built-up Vapor Barrier (M)	Lower Roof Layer 3	N	G			
07	01	Built-up Vapor Barrier (M)	Canopy Roof Layer 3	N	G			
07	02	Built-up Vapor Barrier (M)	Canopy Roof Layer 3	N	G			
08	01	Concrete Deck (M)	Tower Roof Layer 4	F	G			
08	02	Concrete Deck (M)	Lower Roof Layer 4	F	G			
09	01	Brick (M)	Exterior Wall	F	G			
09	02	Brick (M)	Exterior Wall	F	G			
10	01	Brick Mortar (M)	Exterior Wall	F	G			
10	02	Brick Mortar (M)	Exterior Wall	F	G			
11	01	Pitch Pocket Sealer (M)	Tower Roof	N	G			
11	02	Pitch Pocket Sealer (M)	Tower Roof	N	G			
12	01	Black EPDM Seamseal Caulk (M)	Penthouse Roof	N	G			2240830551
12	02	Black EPDM Seamseal Caulk (M)	Tower Roof	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I	8/19/24	16:00	J. Merrick	8/20/24	11:40
II					

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: ANOA	8/26/24	10:13
b. QC by:		

8/26/24 11:37Am

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations	Comments:

(T=TSI; S=Surfacing; M=Misc)

Ambient Environmental, Inc.
Comprehensive Building Science Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	Administration Building	Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
13	01	Black Termbar Caulk (M)	Tower Roof	N	G			
13	02	Black Termbar Caulk (M)	Tower Roof	N	G			
14	01	Black Flashing Caulk (M)	Lower Roof	N	G			
14	02	Black Flashing Caulk (M)	Lower Roof	N	G			
15	01	Gray EPDM Seamseal Caulk (M)	Lower Roof	N	G			
15	02	Gray EPDM Seamseal Caulk (M)	Lower Roof	N	G			
16	01	White Window Caulk (M)	Lower Roof Metal Panel below Window	N	G			
16	02	White Window Caulk (M)	Lower Roof Metal Panel below Window	N	G			
							2240830555	

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I Ken Jones	8/19/24	16:00	J. Merretrick	8/20/24	11:40
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: AWD	8/26/24	10:13
b. QC by:		

8/26/24 11:37AM

Comments:

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – WEST GYM
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
01	01	Gray Liquid Applied Coating (S)	Roof A Layer 1	N	G	N/A	N/A	NAD
01	02	Gray Liquid Applied Coating (S)	Roof A Layer 1	N	G	N/A	N/A	NAD
01	03	Gray Liquid Applied Coating (S)	Roof E Layer 1	N	G	N/A	N/A	NAD
01	04	Gray Liquid Applied Coating (S)	Roof E Layer 1	N	G	N/A	N/A	NAD
01	05	Gray Liquid Applied Coating (S)	Roof E Layer 1	N	G	N/A	N/A	NAD
01	06	Gray Liquid Applied Coating (S)	Roof H Layer 1	N	G	N/A	N/A	NAD
01	07	Gray Liquid Applied Coating (S)	Roof H Layer 1	N	G	N/A	N/A	NAD
02	01	Black EPDM (M)	Roof B Layer 1	N	G	N/A	N/A	NAD
02	02	Black EPDM (M)	Roof D Layer 1	N	G	N/A	N/A	NAD
02	03	Black EPDM (M)	Roof F Layer 1	N	G	N/A	N/A	NAD
03	01	White EPDM (M)	Roof G Layer 1	N	G	N/A	N/A	NAD
03	02	White EPDM (M)	Roof G Layer 1	N	G	N/A	N/A	NAD
04	01	Fiber Reinforced Layer (M)	Roof A Layer 2	N	G	N/A	N/A	NAD
04	02	Fiber Reinforced Layer (M)	Roof E Layer 2	N	G	N/A	N/A	NAD
04	03	Fiber Reinforced Layer (M)	Roof H Layer 2	N	G	N/A	N/A	NAD
05	01	Black Isoboard Facing (M)	Roof B Layer 2	N	G	N/A	N/A	NAD
05	02	Black Isoboard Facing (M)	Roof D Layer 2	N	G	N/A	N/A	NAD
05	03	Black Isoboard Facing (M)	Roof F Layer 2	N	G	N/A	N/A	NAD
05	04	Black Isoboard Facing (M)	Roof G Layer 2	N	G	N/A	N/A	NAD
06	01	Brown Perlite (M)	Roof B Layer 3	N	G	N/A	N/A	NAD

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – WEST GYM
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
06	02	Brown Perlite (M)	Roof C Layer 3	N	G	N/A	N/A	NAD
06	03	Brown Perlite (M)	Roof D Layer 3	N	G	N/A	N/A	NAD
06	04	Brown Perlite (M)	Roof F Layer 3	N	G	N/A	N/A	NAD
07	01	Modified Bitumen Vapor Barrier (M)	Roof A Layer 3	N	G	N/A	N/A	NAD
07	02	Modified Bitumen Vapor Barrier (M)	Roof E Layer 3	N	G	N/A	N/A	NAD
07	03	Modified Bitumen Vapor Barrier (M)	Roof H Layer 3	N	G	N/A	N/A	NAD
08	01	Built-up Vapor Barrier (M)	Roof G Layer 3	N	G	743 SF	Roof G	3.4% Chrysotile
08	02	Built-up Vapor Barrier (M)	Roof G Layer 3	N	G			NA/PS
09	01	Silver coated Tar on Concrete Deck (M)	Roof G Layer 4	N	G			1.6% Chrysotile
09	02	Silver coated Tar on Concrete Deck (M)	Roof G Layer 4	N	G			NA/PS
10	01	Black & White Granular Material (M)	Roof B Layer 4	N	G	N/A	N/A	NAD
10	02	Black & White Granular Material (M)	Roof H Layer 4	N	G	N/A	N/A	NAD
11	01	Tan & Fiber and Concrete Rib (M)	Roof H Layer 5	N	G	N/A	N/A	NAD
11	02	Tan & Fiber and Concrete Deck (M)	Roof H Layer 5	N	G	N/A	N/A	NAD
12	01	Clear Poly Vapor Barrier (M)	Roof B Layer 4	N	G	N/A	N/A	NAD
12	02	Clear Poly Vapor Barrier (M)	Roof D Layer 4	N	G	N/A	N/A	NAD
13	01	Tar on Flashing at Pilaster (M)	Roof B	N	G	60 SF	Pool and Gym Pilasters	6.7% Chrysotile
13	02	Tar on Flashing at Pilaster (M)	Roof B	N	G			NA/PS
14	01	Tar on Parapet Wall (M)	Roof E	N	G	N/A	N/A	NAD
14	02	Tar on Parapet Wall (M)	Roof E	N	G	N/A	N/A	NAD

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – WEST GYM
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
15	01	Lightweight Concrete (M)	Roof A Layer 4	F	G	N/A	N/A	NAD
15	02	Lightweight Concrete (M)	Roof E Layer 4	F	G	N/A	N/A	NAD
16	01	Brick Wall (M)	Exterior Wall	F	G	N/A	N/A	NAD
16	02	Brick Wall (M)	Exterior Wall	F	G	N/A	N/A	NAD
17	01	Brick Mortar (M)	Exterior Wall	F	G	N/A	N/A	NAD
17	02	Brick Mortar (M)	Exterior Wall	F	G	N/A	N/A	NAD
18	01	Brick Expansion Joint Caulk (M)	Exterior Wall	N	G	N/A	N/A	NAD
18	02	Brick Expansion Joint Caulk (M)	Exterior Wall	N	G	N/A	N/A	NAD
19	01	Tan Louver Caulk (M)	Exterior Wall from Canopy Roof	N	G	2.5 SF	Gym North Wall above Canopy	4.8% Chrysotile
19	02	Tan Louver Caulk (M)	Exterior Wall from Canopy Roof	N	G			NA/PS
20	01	Black Seam seal Caulk (M)	B Roof	N	G	N/A	N/A	NAD
20	02	Black Seam seal Caulk (M)	F Roof	N	G	N/A	N/A	NAD
21	01	Black Term bar Caulk (M)	Exterior Wall from Canopy Roof	N	G	7 SF	Gym North Wall above Canopy	2.1% Chrysotile
21	02	Black Term bar Caulk (M)	Exterior Wall from Canopy Roof	N	G			NA/PS
22	01	Gray Term bar Caulk (M)	F Roof at Windows	N	G	N/A	N/A	NAD
22	02	Gray Term bar Caulk (M)	F Roof at Windows	N	G	N/A	N/A	NAD
23	01	Gray Coping Caulk (M)	A Roof Coping Joints	N	G	N/A	N/A	NAD
23	02	Gray Coping Caulk (M)	A Roof Coping Joints	N	G	N/A	N/A	NAD
24	01	Gray Flashing Caulk (M)	D Roof	N	G	N/A	N/A	NAD
24	02	Gray Flashing Caulk (M)	D Roof	N	G	N/A	N/A	NAD

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – WEST GYM
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
25	01	Black Patching Caulk (M)	C Roof at Vertical Corner	N	G	N/A	N/A	<1.0% Chrysotile
25	02	Black Patching Caulk (M)	C Roof at Top of Flashing	N	G	N/A	N/A	<1.0% Chrysotile
26	01	Brown Caulk (M)	F Roof Overhang to Top of Window Frame	N	G	24 SF	Above Lobby Windows	3.6% Chrysotile
26	02	Brown Caulk (M)	F Roof Overhang to Top of Window Frame	N	G			NA/PS
27	01	Silver Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G	N/A	N/A	NAD
27	02	Silver Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G	N/A	N/A	NAD
28	01	Clear Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G	N/A	N/A	NAD
28	02	Clear Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G	N/A	N/A	NAD
29	01	Roof Drain Insulation Cloth Jacket (T)	C Roof Mechanical Room	N	G	N/A	N/A	NAD
29	02	Roof Drain Insulation Cloth Jacket (T)	C Roof Mechanical Room	N	G	N/A	N/A	NAD
29	03	Roof Drain Insulation Cloth Jacket (T)	C Roof Mechanical Room	N	G	N/A	N/A	NAD
30	01	Roof Drain Insulation Facing (T)	C Roof Mechanical Room	N	G	N/A	N/A	NAD
30	02	Roof Drain Insulation Facing (T)	C Roof Mechanical Room	N	G	N/A	N/A	NAD
30	03	Roof Drain Insulation Facing (T)	C Roof Mechanical Room	N	G	N/A	N/A	NAD
31	01	Roof Drain Mudded Fitting (T)	C Roof Mechanical Room	F	G	16 Fittings	Roofs B, C, D, F, G, H, I, J, K, and L	6.8% Chrysotile
31	02	Roof Drain Mudded Fitting (T)	C Roof Mechanical Room	F	G			NA/PS

(T=TSI; S=Surfacing; M=Misc)

NAD = No asbestos detected NA/PS = Not analyzed/positive stop

SF = Square Foot LF = Linear Foot

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – WEST GYM
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

* Quantities are estimates only and should be field verified.
* Quantities and homogenous locations only reflect renovation areas and do not represent other areas throughout the building.

Note: Refer to Assumptions & Limitations Section of the Report.

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: 2126798600 FAX: 2126793114

August 27, 2024

Ambient Environmental, Inc.
Attn: Joella Viscusi
828 Washington Avenue
Albany, NY 12203

RE: Ambient Environmental, Inc.
Job Number 224082897
P.O. #240807AC
240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Dear Joella Viscusi:

Enclosed are the results of Asbestos Analysis - Bulk Protocol of the following Ambient Environmental, Inc. samples, received at AmeriSci on Saturday, August 17, 2024, for a 5 day turnaround:

Sample ID 01-01 through 31-02

The 76 samples, placed in Zip Lock Bag, were shipped to AmeriSci via Fed Ex. Ambient Environmental, Inc. requested ELAP PLM/TEM analysis of these samples.

The results of the analyses which were performed following ELAP Protocols 198.1 PLM Friable and/or 198.6 for PLM NOB. ELAP Protocol 198.4 TEM NOB guidelines are presented within the Summary Table of this report. The presence of matrix reduction data in the Summary Table normally indicates an NOB sample. For NOB samples the individual matrix reduction, combined PLM and TEM analysis results are listed in the Summary Bulk Asbestos Analysis Results in Table I. Complete PLM results for individual samples are presented in the PLM Bulk Asbestos Report. Samples near 1% asbestos may be analyzed by EPA 400 pt ct method (EPA 600-M4-82-020). This combined report relates ONLY to sample analysis expressed as percent composition by weight and percent asbestos. This report must not be used to claim product endorsement or approval by these laboratories, NVLAP, ELAP or any other associated agency. This report must not be reproduced, except in full without the written approval of the laboratory. This report may contain specific data not covered by NVLAP or ELAP accreditations respectively, if so identified in relevant footnotes.

AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

John P. Koubiadis
Asb. Mgr. | Authorized Signatory

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

PLM Bulk Asbestos Report

Ambient Environmental, Inc.
Attn: Joella Viscusi
828 Washington Avenue

Albany, NY 12203

Date Received 08/17/24
Date Examined 08/21/24
ELAP # 11480
AmeriSci Job # 224082897
P.O. #
Page 1 **of** 14

RE: 240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
01-01 01	224082897-01 **Location:** Roof A Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 31.5%			
01-02 01	224082897-02 **Location:** Roof A Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 30.7%			
01-03 01	224082897-03 **Location:** Roof E Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 32.9%			
01-04 01	224082897-04 **Location:** Roof E Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 38.7%			
01-05 01	224082897-05 **Location:** Roof E Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 35.7%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
01-06 01	224082897-06 **Location:** Roof H Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 40.4%			
01-07 01	224082897-07 **Location:** Roof H Layer 1 - Gray Liquid Applied Coating (S)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 38.9%			
02-01 02	224082897-08 **Location:** Roof B Layer 1 - Black EPDM (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 14.2%			
02-02 02	224082897-09 **Location:** Roof D Layer 1 - Black EPDM (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 0.7%			
02-03 02	224082897-10 **Location:** Roof F Layer 1 - Black EPDM (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 16.8%			
03-01 03	224082897-11 **Location:** Roof G Layer 1 - White EPDM (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 0.6%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
03-02 03	224082897-12 **Location:** Roof G Layer 1 - White EPDM (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 6.1%			
04-01 04	224082897-13 **Location:** Roof A Layer 2 - Fiber Reinforced Layer (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black/Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 25.5%			
04-02 04	224082897-14 **Location:** Roof E Layer 2 - Fiber Reinforced Layer (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black/Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 19.5%			
04-03 04	224082897-15 **Location:** Roof H Layer 2 - Fiber Reinforced Layer (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black/Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21%			
05-01 05	224082897-16 **Location:** Roof B Layer 2 - Black Isoboard Facing (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Dark Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 70%, Fibrous glass 5%, Non-fibrous 25%			
05-02 05	224082897-17 **Location:** Roof D Layer 2 - Black Isoboard Facing (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Dark Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 70%, Fibrous glass 5%, Non-fibrous 25%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
05-03 05	224082897-18 **Location:** Roof F Layer 2 - Black Isoboard Facing (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Dark Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 70%, Fibrous glass 5%, Non-fibrous 25%			
05-04 05	224082897-19 **Location:** Roof G Layer 2 - Black Isoboard Facing (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Dark Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 95%, Fibrous glass 5%			
06-01 06	224082897-20 **Location:** Roof B Layer 3 - Brown Perlite (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 60%, Non-fibrous 40%			
06-02 06	224082897-21 **Location:** Roof C Layer 3 - Brown Perlite (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 60%, Non-fibrous 40%			
06-03 06	224082897-22 **Location:** Roof D Layer 3 - Brown Perlite (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 60%, Non-fibrous 40%			
06-04 06	224082897-23 **Location:** Roof F Layer 3 - Brown Perlite (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 60%, Non-fibrous 40%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
07-01 07	224082897-24 **Location:** Roof A Layer 3 - Modified Bitumen Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21.9%			
07-02 07	224082897-25 **Location:** Roof E Layer 3 - Modified Bitumen Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 10.8%			
07-03 07	224082897-26 **Location:** Roof H Layer 3 - Modified Bitumen Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 14.3%			
08-01 08	224082897-27 **Location:** Roof G Layer 3 - Built-Up Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 34.3%			
08-02 08	224082897-28 **Location:** Roof G Layer 3 - Built-Up Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 30.6%			
09-01 09	224082897-29 **Location:** Roof G Layer 4 - Silver Coated Tar On Concrete Deck (M)	***Yes***	1.6% [1] (ELAP 400 PC) by Jared C. Clarke on 08/21/24
Analyst Description: Silver/Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 1.6 % **Other Material:** Non-fibrous 28.9%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
09-02 09	224082897-30 **Location:** Roof G Layer 4 - Silver Coated Tar On Concrete Deck (M)		NA/PS
Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**			
10-01 10	224082897-31 **Location:** Roof B Layer 4 - Black & White Granular Material (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 20.9%			
10-02 10	224082897-32 **Location:** Roof H Layer 4 - Black & White Granular Material (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 25.3%			
11-01 11	224082897-33 **Location:** Roof H Layer 5 - Tan & Fiber And Concrete Rib (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 15.8%			
11-02 11	224082897-34 **Location:** Roof H Layer 5 - Tan & Fiber And Concrete Rib (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 10.5%			
12-01 12	224082897-35 **Location:** Roof B Layer 4 - Clear Poly Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Clear, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			

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PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
12-02 12	224082897-36 **Location:** Roof D Layer 4 - Clear Poly Vapor Barrier (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Clear, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
13-01 13	224082897-37 **Location:** Roof B - Tar On Flashing At Pilaster (M)	***Yes***	6.7% (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 6.7 % **Other Material:** Non-fibrous 23.4%			
13-02 13	224082897-38 **Location:** Roof B - Tar On Flashing At Pilaster (M)		NA/PS
Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**			
14-01 14	224082897-39 **Location:** Roof E - Tar On Parapet Wall (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 10.3%			
14-02 14	224082897-40 **Location:** Roof E - Tar On Parapet Wall (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.5%			
15-01 15	224082897-41 **Location:** Roof A Layer 4 - Lightweight Concrete (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
15-02 15	224082897-42 **Location:** Roof E Layer 4 - Lightweight Concrete (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
16-01 16	224082897-43 **Location:** Exterior Wall - Brick Wall (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Red, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
16-02 16	224082897-44 **Location:** Exterior Wall - Brick Wall (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Red, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
17-01 17	224082897-45 **Location:** Exterior Wall - Brick Mortar (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
17-02 17	224082897-46 **Location:** Exterior Wall - Brick Mortar (M)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%			
18-01 18	224082897-47 **Location:** Exterior Wall - Brick Expansion Joint Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21.8%			

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PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
18-02 18	224082897-48 **Location:** Exterior Wall - Brick Expansion Joint Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 13.1%			
19-01 19	224082897-49 **Location:** Exterior Wall From F Roof - Tan Louver Caulk (M)	***Yes***	4.8% (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Tan/Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 4.8 % **Other Material:** Non-fibrous 21.6%			
19-02 19	224082897-50 **Location:** Exterior Wall From F Roof - Tan Louver Caulk (M)		NA/PS
Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**			
20-01 20	224082897-51 **Location:** B Roof - Black Seamseal Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 4.8%			
20-02 20	224082897-52 **Location:** F Roof - Black Seamseal Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 14.5%			
21-01 21	224082897-53 **Location:** F Roof - Black Tembar Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 20.7%			

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PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
21-02 21	224082897-54 **Location:** F Roof - Black Tembar Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 13.8%			
22-01 22	224082897-55 **Location:** F Roof At Windows - Gray Tembar Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 7.4%			
22-02 22	224082897-56 **Location:** F Roof At Windows - Gray Tembar Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 13.5%			
23-01 23	224082897-57 **Location:** A Roof Coping Joints - Gray (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 10.1%			
23-02 23	224082897-58 **Location:** A Roof Coping Joints - Gray (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 9.4%			
24-01 24	224082897-59 **Location:** D Roof - Gray (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 8.9%			

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PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
24-02 24	224082897-60 **Location:** D Roof - Gray (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 5.3%			
25-01 25	224082897-61 **Location:** C Roof At Vertical Corner - Black (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray/Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 11.5%			
25-02 25	224082897-62 **Location:** C Roof At Top Of Flashing - Black (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Gray/Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.1%			
26-01 26	224082897-63 **Location:** F Roof Overhang To Top Of Window Frame - Brown (M)	***Yes***	3.6% (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 3.6 % **Other Material:** Non-fibrous 15.3%			
26-02 26	224082897-64 **Location:** F Roof Overhang To Top Of Window Frame - Brown (M)		NA/PS
Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**			
27-01 27	224082897-65 **Location:** B Roof Flashing At Pilaster Under Rubber - Silver Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Silver, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21.8%			

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PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
27-02 27	224082897-66 **Location:** B Roof Flashing At Pilaster Under Rubber - Silver Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Silver, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 17.5%			
28-01 28	224082897-67 **Location:** B Roof Flashing At Pilaster Under Rubber - Clear Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Clear, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 31.3%			
28-02 28	224082897-68 **Location:** B Roof Flashing At Pilaster Under Rubber - Clear Caulk (M)	***No***	NAD (by NYS ELAP 198.6) by Jared C. Clarke on 08/21/24
Analyst Description: Clear, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 29.2%			
29-01 29	224082897-69 **Location:** C Roof Mechanical Room - Roof Drain Insulation Cloth Jacket (T)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 80%, Non-fibrous 20%			
29-02 29	224082897-70 **Location:** C Roof Mechanical Room - Roof Drain Insulation Cloth Jacket (T)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 80%, Non-fibrous 20%			
29-03 29	224082897-71 **Location:** C Roof Mechanical Room - Roof Drain Insulation Cloth Jacket (T)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Brown, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 80%, Non-fibrous 20%			

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PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
30-01 30	224082897-72 **Location:** C Roof Mechanical Room - Roof Drain Insulation Facing (T)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 90%, Non-fibrous 10%			
30-02 30	224082897-73 **Location:** C Roof Mechanical Room - Roof Drain Insulation Facing (T)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 90%, Non-fibrous 10%			
30-03 30	224082897-74 **Location:** C Roof Mechanical Room - Roof Drain Insulation Facing (T)	***No***	NAD (by NYS ELAP 198.1) by Jared C. Clarke on 08/21/24
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 90%, Non-fibrous 10%			
31-01 31	224082897-75 **Location:** C Roof Mechanical Room - Roof Drain Mudded Fitting (T)	***Yes***	6.8% (ELAP 400 PC) by Jared C. Clarke on 08/21/24
Analyst Description: Gray, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 6.8 % **Other Material:** Fibrous glass 15%, Non-fibrous 78.2%			
31-02 31	224082897-76 **Location:** C Roof Mechanical Room - Roof Drain Mudded Fitting (T)		NA/PS
Analyst Description: Bulk Material **Asbestos Types:** **Other Material:**			

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PLM Bulk Asbestos Report

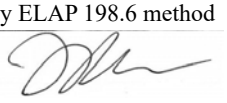
240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

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Reporting Notes:

(1) Sample prepared for analysis by ELAP 198.6 method

Analyzed by: Jared C. Clarke
Date: 8/21/2024



Reviewed by: Hongyan Ran



*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis using Motic, Model BA310 Pol Scope, Microscope, Serial #: 1190000326, by Appd E to Subpt E, 40 CFR 763 quantified by either CVES or 400 pt ct as noted for each analysis (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite, or ELAP 198.6 for NOB samples, or EPA 400 pt ct by EPA 600-M4-82-020 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054, NJ Lab ID #NY031.

_____END OF REPORT_____

Client Name: Ambient Environmental, Inc.

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	01-01	01	0.212	60.5	8.0	31.5	NAD	NAD
Location: Roof A Layer 1 - Gray Liquid Applied Coating (S)								
02	01-02	01	0.265	61.0	8.3	30.7	NAD	NAD
Location: Roof A Layer 1 - Gray Liquid Applied Coating (S)								
03	01-03	01	0.251	57.1	10.0	32.9	NAD	NAD
Location: Roof E Layer 1 - Gray Liquid Applied Coating (S)								
04	01-04	01	0.316	59.3	2.0	38.7	NAD	NAD
Location: Roof E Layer 1 - Gray Liquid Applied Coating (S)								
05	01-05	01	0.219	58.0	6.3	35.7	NAD	NAD
Location: Roof E Layer 1 - Gray Liquid Applied Coating (S)								
06	01-06	01	0.238	54.5	5.1	40.4	NAD	NAD
Location: Roof H Layer 1 - Gray Liquid Applied Coating (S)								
07	01-07	01	0.205	56.7	4.4	38.9	NAD	NAD
Location: Roof H Layer 1 - Gray Liquid Applied Coating (S)								
08	02-01	02	0.172	78.4	7.5	14.2	NAD	NAD
Location: Roof B Layer 1 - Black EPDM (M)								
09	02-02	02	1.058	15.3	84.0	0.7	NAD	NAD
Location: Roof D Layer 1 - Black EPDM (M)								
10	02-03	02	0.175	69.3	13.9	16.8	NAD	NAD
Location: Roof F Layer 1 - Black EPDM (M)								
11	03-01	03	0.151	81.8	17.6	0.6	NAD	NAD
Location: Roof G Layer 1 - White EPDM (M)								
12	03-02	03	0.134	78.4	15.5	6.1	NAD	NAD
Location: Roof G Layer 1 - White EPDM (M)								
13	04-01	04	0.401	51.5	22.9	25.5	NAD	NAD
Location: Roof A Layer 2 - Fiber Reinforced Layer (M)								
14	04-02	04	0.385	68.8	11.7	19.5	NAD	NAD
Location: Roof E Layer 2 - Fiber Reinforced Layer (M)								
15	04-03	04	0.437	62.2	16.8	21.0	NAD	NAD
Location: Roof H Layer 2 - Fiber Reinforced Layer (M)								
16	05-01	05	----	----	----	----	NAD	NA
Location: Roof B Layer 2 - Black Isoboard Facing (M)								

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Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
17	05-02	05	----	----	----	----	NAD	NA
Location: Roof D Layer 2 - Black Isoboard Facing (M)								
18	05-03	05	----	----	----	----	NAD	NA
Location: Roof F Layer 2 - Black Isoboard Facing (M)								
19	05-04	05	----	----	----	----	NAD	NA
Location: Roof G Layer 2 - Black Isoboard Facing (M)								
20	06-01	06	----	----	----	----	NAD	NA
Location: Roof B Layer 3 - Brown Perlite (M)								
21	06-02	06	----	----	----	----	NAD	NA
Location: Roof C Layer 3 - Brown Perlite (M)								
22	06-03	06	----	----	----	----	NAD	NA
Location: Roof D Layer 3 - Brown Perlite (M)								
23	06-04	06	----	----	----	----	NAD	NA
Location: Roof F Layer 3 - Brown Perlite (M)								
24	07-01	07	0.394	43.4	34.7	21.9	NAD	NAD
Location: Roof A Layer 3 - Modified Bitumen Vapor Barrier (M)								
25	07-02	07	0.508	54.3	34.9	10.8	NAD	NAD
Location: Roof E Layer 3 - Modified Bitumen Vapor Barrier (M)								
26	07-03	07	0.646	77.1	8.5	14.3	NAD	NAD
Location: Roof H Layer 3 - Modified Bitumen Vapor Barrier (M)								
27	08-01	08	0.489	50.3	15.4	30.9	NAD	Chrysotile 3.4
Location: Roof G Layer 3 - Built-Up Vapor Barrier (M)								
28	08-02	08	0.305	52.8	16.7	30.6	NAD	NA/PS
Location: Roof G Layer 3 - Built-Up Vapor Barrier (M)								
29	09-01	09	0.418	53.9	15.6	28.9	Chrysotile 1.6	NA
Location: Roof G Layer 4 - Silver Coated Tar On Concrete Deck (M)								
30	09-02	09	0.526	51.6	16.2	32.3	NA/PS	NA
Location: Roof G Layer 4 - Silver Coated Tar On Concrete Deck (M)								
31	10-01	10	0.281	52.9	26.1	20.9	NAD	NAD
Location: Roof B Layer 4 - Black & White Granular Material (M)								
32	10-02	10	0.266	47.3	27.4	25.3	NAD	NAD
Location: Roof H Layer 4 - Black & White Granular Material (M)								

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Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
33	11-01	11	0.376	80.3	3.9	15.8	NAD	NAD
Location: Roof H Layer 5 - Tan & Fiber And Concrete Rib (M)								
34	11-02	11	0.513	79.8	9.7	10.5	NAD	NAD
Location: Roof H Layer 5 - Tan & Fiber And Concrete Rib (M)								
35	12-01	12	----	----	----	----	NAD	NA
Location: Roof B Layer 4 - Clear Poly Vapor Barrier (M)								
36	12-02	12	----	----	----	----	NAD	NA
Location: Roof D Layer 4 - Clear Poly Vapor Barrier (M)								
37	13-01	13	0.237	60.3	9.6	23.4	Chrysotile 6.7	NA
Location: Roof B - Tar On Flashing At Pilaster (M)								
38	13-02	13	0.392	56.4	22.7	20.9	NA/PS	NA
Location: Roof B - Tar On Flashing At Pilaster (M)								
39	14-01	14	0.108	76.7	13.1	10.3	NAD	NAD
Location: Roof E - Tar On Parapet Wall (M)								
40	14-02	14	0.082	73.3	23.1	3.5	NAD	NAD
Location: Roof E - Tar On Parapet Wall (M)								
41	15-01	15	----	----	----	----	NAD	NA
Location: Roof A Layer 4 - Lightweight Concrete (M)								
42	15-02	15	----	----	----	----	NAD	NA
Location: Roof E Layer 4 - Lightweight Concrete (M)								
43	16-01	16	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick Wall (M)								
44	16-02	16	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick Wall (M)								
45	17-01	17	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick Mortar (M)								
46	17-02	17	----	----	----	----	NAD	NA
Location: Exterior Wall - Brick Mortar (M)								
47	18-01	18	0.278	34.6	43.6	21.8	NAD	NAD
Location: Exterior Wall - Brick Expansion Joint Caulk (M)								
48	18-02	18	0.364	41.3	45.6	13.1	NAD	NAD
Location: Exterior Wall - Brick Expansion Joint Caulk (M)								

See Reporting notes on last page

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
49	19-01	19	0.251	39.6	33.9	21.6	Chrysotile 4.8	NA
Location: Exterior Wall From F Roof - Tan Louver Caulk (M)								
50	19-02	19	0.217	41.2	36.8	22.0	NA/PS	NA
Location: Exterior Wall From F Roof - Tan Louver Caulk (M)								
51	20-01	20	0.238	30.5	64.8	4.8	NAD	NAD
Location: B Roof - Black Seamseal Caulk (M)								
52	20-02	20	0.364	45.3	40.2	14.5	NAD	NAD
Location: F Roof - Black Seamseal Caulk (M)								
53	21-01	21	0.575	38.2	41.1	18.6	NAD	Chrysotile 2.1
Location: F Roof - Black Tembar Caulk (M)								
54	21-02	21	0.316	38.6	47.7	13.8	NAD	NA/PS
Location: F Roof - Black Tembar Caulk (M)								
55	22-01	22	0.210	45.6	46.9	7.4	NAD	NAD
Location: F Roof At Windows - Gray Tembar Caulk (M)								
56	22-02	22	0.299	44.8	41.7	13.5	NAD	NAD
Location: F Roof At Windows - Gray Tembar Caulk (M)								
57	23-01	23	0.196	66.8	23.0	10.1	NAD	NAD
Location: A Roof Coping Joints - Gray (M)								
58	23-02	23	0.248	67.3	23.3	9.4	NAD	NAD
Location: A Roof Coping Joints - Gray (M)								
59	24-01	24	0.211	71.8	19.3	8.9	NAD	NAD
Location: D Roof - Gray (M)								
60	24-02	24	0.270	76.1	18.5	5.3	NAD	NAD
Location: D Roof - Gray (M)								
61	25-01	25	0.224	42.5	46.0	11.3	NAD	Chrysotile <1.0
Location: C Roof At Vertical Corner - Black (M)								
62	25-02	25	0.210	36.1	60.8	2.9	NAD	Chrysotile <1.0
Location: C Roof At Top Of Flashing - Black (M)								
63	26-01	26	0.339	39.6	41.5	15.3	Chrysotile 3.6	NA
Location: F Roof Overhang To Top Of Window Frame - Brown (M)								
64	26-02	26	0.357	52.7	33.5	13.7	NA/PS	NA
Location: F Roof Overhang To Top Of Window Frame - Brown (M)								

See Reporting notes on last page

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
65	27-01	27	0.264	61.6	16.5	21.8	NAD	NAD
Location: B Roof Flashing At Pilaster Under Rubber - Silver Caulk (M)								
66	27-02	27	0.251	63.9	18.6	17.5	NAD	NAD
Location: B Roof Flashing At Pilaster Under Rubber - Silver Caulk (M)								
67	28-01	28	0.196	62.4	6.3	31.3	NAD	NAD
Location: B Roof Flashing At Pilaster Under Rubber - Clear Caulk (M)								
68	28-02	28	0.122	62.3	8.5	29.2	NAD	NAD
Location: B Roof Flashing At Pilaster Under Rubber - Clear Caulk (M)								
69	29-01	29	----	----	----	----	NAD	NA
Location: C Roof Mechanical Room - Roof Drain Insulation Cloth Jacket (T)								
70	29-02	29	----	----	----	----	NAD	NA
Location: C Roof Mechanical Room - Roof Drain Insulation Cloth Jacket (T)								
71	29-03	29	----	----	----	----	NAD	NA
Location: C Roof Mechanical Room - Roof Drain Insulation Cloth Jacket (T)								
72	30-01	30	----	----	----	----	NAD	NA
Location: C Roof Mechanical Room - Roof Drain Insulation Facing (T)								
73	30-02	30	----	----	----	----	NAD	NA
Location: C Roof Mechanical Room - Roof Drain Insulation Facing (T)								
74	30-03	30	----	----	----	----	NAD	NA
Location: C Roof Mechanical Room - Roof Drain Insulation Facing (T)								
75	31-01	31	----	----	----	----	Chrysotile 6.8	NA
Location: C Roof Mechanical Room - Roof Drain Mudded Fitting (T)								
76	31-02	31	----	----	----	----	NA/PS	NA
Location: C Roof Mechanical Room - Roof Drain Mudded Fitting (T)								

See Reporting notes on last page

Client Name: Ambient Environmental, Inc.

Table I
Summary of Bulk Asbestos Analysis Results

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys - 4400 Vestal Parkway E, Binghamton, NY - West Gym, Interior And Roofs

AmeriSci Sample #	Client Sample#	HG Area	Sample Weight (gram)	Heat Sensitive Organic %	Acid Soluble Inorganic %	Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM

Analyzed by: Hongyan Ran
Date: 8/22/2024



Reviewed by: Hongyan Ran



**Quantitative Analysis (Semi/Full); Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or NYSDOH ELAP 198.1 for New York friable samples or NYSDOH ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or NYSDOH ELAP 198.4; for New York samples). Analysis using Hitachi, Model H7000-Noran 7 System, Microscope, Serial #: 747-05-06. NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = <1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of <0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, NJ Lab ID #NY031.

Warning Note: PLM limitation, only TEM will resolve fibers <0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).

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2240828897

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/8, 8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	West Gym	Interior and Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
01	01	Gray Liquid Applied Coating (S)	Roof A Layer 1	N	G			
01	02	Gray Liquid Applied Coating (S)	Roof A Layer 1	N	G			
01	03	Gray Liquid Applied Coating (S)	Roof E Layer 1	N	G			
01	04	Gray Liquid Applied Coating (S)	Roof E Layer 1	N	G			
01	05	Gray Liquid Applied Coating (S)	Roof E Layer 1	N	G			
01	06	Gray Liquid Applied Coating (S)	Roof H Layer 1	N	G			
01	07	Gray Liquid Applied Coating (S)	Roof H Layer 1	N	G			
02	01	Black EPDM (M)	Roof B Layer 1	N	G			
02	02	Black EPDM (M)	Roof D Layer 1	N	G			
02	03	Black EPDM (M)	Roof F Layer 1	N	G			
03	01	White EPDM (M)	Roof G Layer 1	N	G			
03	02	White EPDM (M)	Roof G Layer 1	N	G			
04	01	Fiber Reinforced Layer (M)	Roof A Layer 2	N	G			
04	02	Fiber Reinforced Layer (M)	Roof E Layer 2	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I [signature]	8/16/24	16:00	[signature]	8/17/24	1320
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: [signature]	8/21/24	21:05
b. QC by: [signature]	8/22/24	11:20AM

Comments:

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BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

2240828897

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/8, 8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	West Gym	Interior and Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION

TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
04	03	Fiber Reinforced Layer (M)	Roof H Layer 2	N	G			
05	01	Black Isoboard Facing (M)	Roof B Layer 2	N	G			
05	02	Black Isoboard Facing (M)	Roof D Layer 2	N	G			
05	03	Black Isoboard Facing (M)	Roof F Layer 2	N	G			
05	04	Black Isoboard Facing (M)	Roof G Layer 2	N	G			
06	01	Brown Perlite (M)	Roof B Layer 3	N	G			
06	02	Brown Perlite (M)	Roof C Layer 3	N	G			
06	03	Brown Perlite (M)	Roof D Layer 3	N	G			
06	04	Brown Perlite (M)	Roof F Layer 3	N	G			
07	01	Modified Bitumen Vapor Barrier (M)	Roof A Layer 3	N	G			
07	02	Modified Bitumen Vapor Barrier (M)	Roof E Layer 3	N	G			
07	03	Modified Bitumen Vapor Barrier (M)	Roof H Layer 3	N	G			
08	01	Built-up Vapor Barrier (M)	Roof G Layer 3	N	G			
08	02	Built-up Vapor Barrier (M)	Roof G Layer 3	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I	8/12/24	16:00		8/13/24	1320
II					

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By:	8/14/24	21:52
b. QC by:	8/15/24	11:30AM

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

Comments:

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BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/8, 8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	West Gym	Interior and Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
09	01	Silvercoated Tar on Concrete Deck (M)	Roof G Layer 4	N	G			
09	02	Silvercoated Tar on Concrete Deck (M)	Roof G Layer 4	N	G			
10	01	Black & White Granular Material (M)	Roof B Layer 4	N	G			
10	02	Black & White Granular Material (M)	Roof H Layer 4	N	G			
11	01	Tan & Fiber and Concrete Rib (M)	Roof H Layer 5	N	G			
11	02	Tan & Fiber and Concrete Deck (M)	Roof H Layer 5	N	G			
12	01	Clear Poly Vapor Barrier (M)	Roof B Layer 4	N	G			
12	02	Clear Poly Vapor Barrier (M)	Roof D Layer 4	N	G			
13	01	Tar on Flashing at Pilaster (M)	Roof B	N	G			
13	02	Tar on Flashing at Pilaster (M)	Roof B	N	G			
14	01	Tar on Parapet Wall (M)	Roof E	N	G			
14	02	Tar on Parapet Wall (M)	Roof E	N	G			
15	01	Lightweight Concrete (M)	Roof A Layer 4	F	G			
15	02	Lightweight Concrete (M)	Roof E Layer 4	F	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I [signature]	8/16/24	16:00	[signature]	8/17/24	1320
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: [signature]	8/21/24	2152
b. QC by: [signature]	[signature] 11:20AM	

Comments:

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BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/8, 8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	West Gym	Interior and Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
16	01	Brick Wall (M)	Exterior Wall	F	G			
16	02	Brick Wall (M)	Exterior Wall	F	G			
17	01	Brick Mortar (M)	Exterior Wall	F	G			
17	02	Brick Mortar (M)	Exterior Wall	F	G			
18	01	Brick Expansion Joint Caulk (M)	Exterior Wall	N	G			
18	02	Brick Expansion Joint Caulk (M)	Exterior Wall	N	G			
19	01	Tan Louver Caulk (M)	Exterior Wall from F Roof	N	G			
19	02	Tan Louver Caulk (M)	Exterior Wall from F Roof	N	G			
20	01	Black Seamseal Caulk (M)	B Roof	N	G			
20	02	Black Seamseal Caulk (M)	F Roof	N	G			
21	01	Black Termbar Caulk (M)	F Roof	N	G			
21	02	Black Termbar Caulk (M)	F Roof	N	G			
22	01	Gray Termbar Caulk (M)	F Roof at Windows	N	G			
22	02	Gray Termbar Caulk (M)	F Roof at Windows	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I Kevin Jones	8/16/24	16:00	[illegible]	8/17/24	1320
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: [illegible]	8/21/24	2150
b. QC by: [illegible]	8/22/24	11:20AM

Comments:

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BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/8, 8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	West Gym	Interior and Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
23	01	Gray Coping Caulk (M)	A Roof Coping Joints	N	G			
23	02	Gray Coping Caulk (M)	A Roof Coping Joints	N	G			
24	01	Gray Flashing Caulk (M)	D Roof	N	G			
24	02	Gray Flashing Caulk (M)	D Roof	N	G			
25	01	Black Patching Caulk (M)	C Roof at Vertical Corner	N	G			
25	02	Black Patching Caulk (M)	C Roof at Top of Flashing	N	G			
26	01	Brown Caulk (M)	F Roof Overhang to Top of Window Frame	N	G			
26	02	Brown Caulk (M)	F Roof Overhang to Top of Window Frame	N	G			
27	01	Silver Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G			
27	02	Silver Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G			
28	01	Clear Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G			
28	02	Clear Caulk (M)	B Roof Flashing at Pilaster under Rubber	N	G			
29	01	Roof Drain Insulation Cloth Jacket (T)	C Roof Mechanical Room	N	G			
29	02	Roof Drain Insulation Cloth Jacket (T)	C Roof Mechanical Room	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I Kevin Jones	8/16/24	16:00	ET	8/19/24	1320
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By:	8/21/24	21:12
b. QC by:	8/22/24	11:20AM

Comments:

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BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client:	Project Name:	Project Street Address:	Client Contact:
Bell & Spina Architects	SUNY Binghamton Roof Surveys	4400 Vestal Parkway E	Joseph Cavino
Project Number:	**Inspector:**	**Project Address City/State:**	**Collection Date:**
240807AC	Kevin Jones	Binghamton, NY	8/8, 8/12 & 8/13/24
Sample TAT:	**Building Name:**	**Sampling Areas:**	**Comments: (Field)**
5 Day	West Gym	Interior and Roofs	X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION — TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
29	03	Roof Drain Insulation Cloth Jacket (T)	C Roof Mechanical Room	N	G			
30	01	Roof Drain Insulation Facing (T)	C Roof Mechanical Room	N	G			
30	02	Roof Drain Insulation Facing (T)	C Roof Mechanical Room	N	G			
30	03	Roof Drain Insulation Facing (T)	C Roof Mechanical Room	N	G			
31	01	Roof Drain Mudded Fitting (T)	C Roof Mechanical Room	F	G			
31	02	Roof Drain Mudded Fitting (T)	C Roof Mechanical Room	F	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I [signature]	8/16/24	16:00	[signature]	8/17/24	1300
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By:		
b. QC by:		

Comments:

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – HEALTH SERVICES BUILDING
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
01	01	Black EPDM (M)	Roof A Layer 1	N	G	N/A	N/A	NAD
01	02	Black EPDM (M)	Roof B Layer 1	N	G	N/A	N/A	NAD
02	01	Black Isoboard Facing (M)	Roof A Layer 2	N	G	N/A	N/A	NAD
02	02	Black Isoboard Facing (M)	Roof B Layer 2	N	G	N/A	N/A	NAD
03	01	Black Hot Mopped Tar (M)	Roof A on Isoboard Insulation	N	G	N/A	N/A	NAD
03	02	Black Hot Mopped Tar (M)	Roof A on Isoboard Insulation	N	G	N/A	N/A	NAD
04	01	2-Ply Vapor Retarder (M)	Roof A Layer 3	N	G	N/A	N/A	NAD
04	02	2-Ply Vapor Retarder (M)	Roof A Layer 3	N	G	N/A	N/A	NAD
05	01	Gypsum Deck (M)	Roof A Layer 4	F	G	N/A	N/A	NAD
05	02	Gypsum Deck (M)	Roof B Layer 4	F	G	N/A	N/A	NAD
06	01	Fiber Foarmboard (M)	Roof A Layer 5	N	G	N/A	N/A	NAD
06	02	Fiber Foarmboard (M)	Roof A Layer 5	N	G	N/A	N/A	NAD
07	01	Edge Flashing (M)	Roof B at edge	N	G	N/A	N/A	NAD
07	02	Edge Flashing (M)	Roof B at edge	N	G	N/A	N/A	NAD
08	01	Cement Flue Lining (M)	Roof B	F	G	N/A	N/A	NAD
08	02	Cement Flue Lining (M)	Roof B	F	G	N/A	N/A	NAD
09	01	Exterior Brick (M)	Penthouse	F	G	N/A	N/A	NAD
09	02	Exterior Brick (M)	Penthouse	F	G	N/A	N/A	NAD
10	01	Exterior Brick Mortar (M)	Penthouse	F	G	N/A	N/A	NAD

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON – HEALTH SERVICES BUILDING
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF ASBESTOS SAMPLES AND ANALYSIS RESULTS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity	Homogeneous Area	Asbestos Content (Type & %)
10	02	Exterior Brick Mortar (M)	Penthouse	F	G	N/A	N/A	NAD
11	01	Black Seamseal Caulk (M)	Roof A	N	G	N/A	N/A	NAD
11	02	Black Seamseal Caulk (M)	Roof B	N	G	N/A	N/A	NAD
12	01	Gray Termbar Caulk (M)	Roof A at Penthouse	N	G	N/A	N/A	NAD
12	02	Gray Termbar Caulk (M)	Roof A at Penthouse	N	G	N/A	N/A	NAD
13	01	Gray Louver Caulk (M)	Penthouse	N	G	N/A	N/A	NAD
13	02	Gray Louver Caulk (M)	Penthouse	N	G	N/A	N/A	NAD
14	01	Brown Window Caulk (M)	Penthouse	N	G	N/A	N/A	NAD
14	02	Brown Window Caulk (M)	Penthouse	N	G	N/A	N/A	NAD
15	01	Gray Window Patch Caulk (M)	Monitor	N	G	N/A	N/A	NAD
15	02	Gray Window Patch Caulk (M)	Monitor	N	G	N/A	N/A	NAD
16	01	White Window Patch Caulk (M)	Monitor	N	G	N/A	N/A	NAD
16	02	White Window Patch Caulk (M)	Monitor	N	G	N/A	N/A	NAD

(T=TSI; S=Surfacing; M=Misc)
NAD = No asbestos detected

* Sample locations only reflect renovation areas and do not represent other areas throughout the building.

Note: Refer to Assumptions & Limitations Section of the Report.

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

November 5, 2024

Ambient Environmental, Inc.
Attn: Joella Viscusi
828 Washington Avenue
Albany, NY 12203

RE: Ambient Environmental, Inc.
Job Number 224103384
P.O. #240807AC
240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys; 4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

Dear Joella Viscusi:

Enclosed are the results of Asbestos Analysis - Bulk Protocol of the following Ambient Environmental, Inc. samples, received at AmeriSci on Thursday, October 31, 2024, for a 5 day turnaround:

01-01, 01-02, 02-01, 02-02, 03-01, 03-02, 04-01, 04-02, 05-01, 05-02, 06-01, 06-02, 07-01, 07-02, 08-01, 08-02, 09-01, 09-02, 10-01, 10-02, 11-01, 11-02, 12-01, 12-02, 13-01, 13-02, 14-01, 14-02, 15-01, 15-02, 16-01, 16-02

The 32 samples, placed in Zip Lock Bag, were shipped to AmeriSci via Fed Ex. Ambient Environmental, Inc. requested ELAP PLM/TEM analysis of these samples.

The results of the analyses which were performed following ELAP Protocols 198.1 PLM Friable and/or 198.6 for PLM NOB. ELAP Protocol 198.4 TEM NOB guidelines are presented within the Summary Table of this report. The presence of matrix reduction data in the Summary Table normally indicates an NOB sample. For NOB samples the individual matrix reduction, combined PLM and TEM analysis results are listed in the Summary Bulk Asbestos Analysis Results in Table I. Complete PLM results for individual samples are presented in the PLM Bulk Asbestos Report. Samples near 1% asbestos may be analyzed by EPA 400 pt ct method (EPA 600-M4-82-020). This combined report relates ONLY to sample analysis expressed as percent composition by weight and percent asbestos. This report must not be used to claim product endorsement or approval by these laboratories, NVLAP, ELAP or any other associated agency. This report must not be reproduced, except in full without the written approval of the laboratory. This report may contain specific data not covered by NVLAP or ELAP accreditations respectively, if so identified in relevant footnotes.

AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

Karol H. Lu

Analyst | Authorized Signatory

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

PLM Bulk Asbestos Report

Ambient Environmental, Inc.
Attn: Joella Viscusi
828 Washington Avenue

Albany, NY 12203

Date Received 10/31/2024 **AmeriSci Job #** 224103384
Date Examined 11/04/24 **P.O. #**
ELAP # 11480 **Page** 1 **of** 5

RE: 240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys; 4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos	Notes
01-01 01 **Location:** Roof A, Layer 1 - Black EPDM (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 26%	224103384-01	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
01-02 01 **Location:** Roof B, Layer 1 - Black EPDM (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 21%	224103384-02	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
02-01 02 **Location:** Roof A, Layer 2 - Black Isoboard Facing (M) **Analyst Description:** Gray/Yellow, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 75%, Fibrous glass 5.0%, Non-fibrous 20%	224103384-03	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
02-02 02 **Location:** Roof B, Layer 2 - Black Isoboard Facing (M) **Analyst Description:** Gray/Yellow, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 80%, Fibrous glass 5.0%, Non-fibrous 15%	224103384-04	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
03-01 03 **Location:** Roof A, On Isoboard Insulation - Black Hot Mopped Tar (M) **Analyst Description:** Black, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 2.0%, Non-fibrous 1.6%	224103384-05	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
03-02 03 **Location:** Roof A, On Isoboard Insulation - Black Hot Mopped Tar (M) **Analyst Description:** Black, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 1.0%, Non-fibrous 1.2%	224103384-06	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys; 4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos	Notes
04-01 04	224103384-07	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
Location: Roof A, Layer 3 - 2-Ply Vapor Retarder (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 4.6%				
04-02 04	224103384-08	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
Location: Roof A, Layer 3 - 2-Ply Vapor Retarder (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 4.2%				
05-01 05	224103384-09	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Roof A, Layer 4 - Gypsum Deck (M) **Analyst Description:** Off-White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose Trace, Non-fibrous 100%				
05-02 05	224103384-10	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Roof B, Layer 4 - Gypsum Deck (M) **Analyst Description:** Off-White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose Trace, Non-fibrous 100%				
06-01 06	224103384-11	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Roof A, Layer 5 - Fiber Foamboard (M) **Analyst Description:** Tan, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 97%, Non-fibrous 3.0%				
06-02 06	224103384-12	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Roof A, Layer 5 - Fiber Foamboard (M) **Analyst Description:** Tan, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 98%, Non-fibrous 2.0%				
07-01 07	224103384-13	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
Location: Roof B, At Edge - Edge Flashing (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 4.0%, Non-fibrous 1.2%				

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys;
4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos	Notes
07-02 07	224103384-14	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
Location: Roof B, At Edge - Edge Flashing (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 2.0%, Non-fibrous 1.8%				
08-01 08	224103384-15	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Roof B - Cement Flue Lining (M) **Analyst Description:** Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Cellulose Trace, Non-fibrous 100%				
08-02 08	224103384-16	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Roof B - Cement Flue Lining (M) **Analyst Description:** Dark Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Cellulose Trace, Non-fibrous 100%				
09-01 09	224103384-17	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Penthouse - Exterior Brick (M) **Analyst Description:** Brick Red, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%				
09-02 09	224103384-18	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Penthouse - Exterior Brick (M) **Analyst Description:** Brick Red, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%				
10-01 10	224103384-19	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Penthouse - Exterior Brick Mortar (M) **Analyst Description:** Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%				
10-02 10	224103384-20	***No***	NAD (by NYS ELAP 198.1) by Valeriu Voicu on 11/04/24	
Location: Penthouse - Exterior Brick Mortar (M) **Analyst Description:** Gray, Homogeneous, Non-Fibrous, Cementitious, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100%				

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys;
4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos	Notes
11-01 11 **Location:** Roof A - Black Seamseal Caulk (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 6.5%	224103384-21	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
11-02 11 **Location:** Roof B - Black Seamseal Caulk (M) **Analyst Description:** Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 8.6%	224103384-22	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
12-01 12 **Location:** Roof A, At Penthouse - Gray Termbar Caulk (M) **Analyst Description:** Gray/Black, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.0%	224103384-23	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
12-02 12 **Location:** Roof A, At Penthouse - Gray Termbar Caulk (M) **Analyst Description:** Gray/Black, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.4%	224103384-24	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
13-01 13 **Location:** Penthouse - Gray Louver Caulk (M) **Analyst Description:** Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 13%	224103384-25	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
13-02 13 **Location:** Penthouse - Gray Louver Caulk (M) **Analyst Description:** Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 12%	224103384-26	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
14-01 14 **Location:** Penthouse - Brown Window Caulk (M) **Analyst Description:** Dark Brown, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 11%	224103384-27	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*

See Reporting notes on last page

PLM Bulk Asbestos Report

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys;
4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos	Notes
14-02 14 **Location:** Penthouse - Brown Window Caulk (M) **Analyst Description:** Dark Brown, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 12%	224103384-28	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
15-01 15 **Location:** Monitor - Gray Window Patch Caulk (M) **Analyst Description:** Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.7%	224103384-29	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
15-02 15 **Location:** Monitor - Gray Window Patch Caulk (M) **Analyst Description:** Gray, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 3.5%	224103384-30	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
16-01 16 **Location:** Monitor - White Window Patch Caulk (M) **Analyst Description:** White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 41%	224103384-31	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*
16-02 16 **Location:** Monitor - White Window Patch Caulk (M) **Analyst Description:** White/Clear, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 34%	224103384-32	***No***	Inconclusive - NAD (NOB by NYS ELAP 198.6) by Valeriu Voicu on 11/04/24	*1*

Reporting Notes:

(1) NAD results by NYS 198.6 are inconclusive and are not considered non-ACM

Analyzed by: Valeriu Voicu
Date: 11/4/2024



Reviewed by: Karol H. Lu



*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop, (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; PLM Bulk Asbestos Analysis using Olympus, Model BH-2 Pol Scope, Microscope, Serial #: 229915, by Appd E to Subpt E, 40 CFR 763 quantified by either CVES or 400 pt ct as noted for each analysis (NVLAP 200546-0), ELAP PLM Method 198.1 for NY friable samples, which includes the identification and quantitation of vermiculite, or ELAP 198.6 for NOB samples, or EPA 400 pt ct by EPA 600-M4-82-020 (NY ELAP Lab 11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. RI Cert AAL-094, CT Cert PH-0186, Mass Cert AA000054, NJ Lab ID #NY031.

END OF REPORT

Client Name: Ambient Environmental, Inc.

Table I
Summary of Bulk Asbestos Analysis Results by NYS ELAP 198.4

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys; 4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

AmeriSci Sample #	Client Sample#	HG Area	NOB Sample Weight (gram)	NOB Heat Sensitive Organic %	NOB Acid Soluble Inorganic %	NOB Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
01	01-01	01	0.199	69.8	4.2	26.0	NAD	NAD
Location: Roof A, Layer 1 - Black EPDM (M)								
02	01-02	01	0.198	75.2	3.6	21.2	NAD	NAD
Location: Roof B, Layer 1 - Black EPDM (M)								
03	02-01	02	----	----	----	----	NAD	NA
Location: Roof A, Layer 2 - Black Isoboard Facing (M)								
04	02-02	02	----	----	----	----	NAD	NA
Location: Roof B, Layer 2 - Black Isoboard Facing (M)								
05	03-01	03	0.238	93.9	2.6	3.6	NAD	NAD
Location: Roof A, On Isoboard Insulation - Black Hot Mopped Tar (M)								
06	03-02	03	0.186	94.9	3.0	2.2	NAD	NAD
Location: Roof A, On Isoboard Insulation - Black Hot Mopped Tar (M)								
07	04-01	04	0.253	91.3	4.2	4.6	NAD	NAD
Location: Roof A, Layer 3 - 2-Ply Vapor Retarder (M)								
08	04-02	04	0.190	95.5	0.3	4.2	NAD	NAD
Location: Roof A, Layer 3 - 2-Ply Vapor Retarder (M)								
09	05-01	05	----	----	----	----	NAD	NA
Location: Roof A, Layer 4 - Gypsum Deck (M)								
10	05-02	05	----	----	----	----	NAD	NA
Location: Roof B, Layer 4 - Gypsum Deck (M)								
11	06-01	06	----	----	----	----	NAD	NA
Location: Roof A, Layer 5 - Fiber Foamboard (M)								
12	06-02	06	----	----	----	----	NAD	NA
Location: Roof A, Layer 5 - Fiber Foamboard (M)								
13	07-01	07	0.226	94.2	0.6	5.2	NAD	NAD
Location: Roof B, At Edge - Edge Flashing (M)								
14	07-02	07	0.243	95.2	1.1	3.8	NAD	NAD
Location: Roof B, At Edge - Edge Flashing (M)								
15	08-01	08	----	----	----	----	NAD	NA
Location: Roof B - Cement Flue Lining (M)								
16	08-02	08	----	----	----	----	NAD	NA
Location: Roof B - Cement Flue Lining (M)								

See Reporting notes on last page

Table I
Summary of Bulk Asbestos Analysis Results by NYS ELAP 198.4

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys; 4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

AmeriSci Sample #	Client Sample#	HG Area	NOB Sample Weight (gram)	NOB Heat Sensitive Organic %	NOB Acid Soluble Inorganic %	NOB Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM
17	09-01	09	----	----	----	----	NAD	NA
Location: Penthouse - Exterior Brick (M)								
18	09-02	09	----	----	----	----	NAD	NA
Location: Penthouse - Exterior Brick (M)								
19	10-01	10	----	----	----	----	NAD	NA
Location: Penthouse - Exterior Brick Mortar (M)								
20	10-02	10	----	----	----	----	NAD	NA
Location: Penthouse - Exterior Brick Mortar (M)								
21	11-01	11	0.326	41.2	52.3	6.5	NAD	NAD
Location: Roof A - Black Seamseal Caulk (M)								
22	11-02	11	0.279	36.2	55.2	8.6	NAD	NAD
Location: Roof B - Black Seamseal Caulk (M)								
23	12-01	12	0.191	26.5	70.5	3.0	NAD	NAD
Location: Roof A, At Penthouse - Gray Termbar Caulk (M)								
24	12-02	12	0.221	33.5	63.1	3.4	NAD	NAD
Location: Roof A, At Penthouse - Gray Termbar Caulk (M)								
25	13-01	13	0.256	48.8	38.1	13.0	NAD	NAD
Location: Penthouse - Gray Louver Caulk (M)								
26	13-02	13	0.279	47.4	40.0	12.6	NAD	NAD
Location: Penthouse - Gray Louver Caulk (M)								
27	14-01	14	0.278	36.5	52.1	11.4	NAD	NAD
Location: Penthouse - Brown Window Caulk (M)								
28	14-02	14	0.309	38.3	49.5	12.2	NAD	NAD
Location: Penthouse - Brown Window Caulk (M)								
29	15-01	15	0.339	25.0	71.3	3.7	NAD	NAD
Location: Monitor - Gray Window Patch Caulk (M)								
30	15-02	15	0.234	28.1	68.4	3.5	NAD	NAD
Location: Monitor - Gray Window Patch Caulk (M)								
31	16-01	16	0.122	49.4	9.3	41.4	NAD	NAD
Location: Monitor - White Window Patch Caulk (M)								
32	16-02	16	0.214	57.9	7.9	34.2	NAD	NAD
Location: Monitor - White Window Patch Caulk (M)								

See Reporting notes on last page

Client Name: Ambient Environmental, Inc.

Table I
Summary of Bulk Asbestos Analysis Results by NYS ELAP 198.4

240807AC; Bell & Spina Architects; SUNY Binghamton Roof Surveys; 4400 Vestal Parkway E, Binghamton, NY; Health Services Building - Roofs

AmeriSci Sample #	Client Sample#	HG Area	NOB Sample Weight (gram)	NOB Heat Sensitive Organic %	NOB Acid Soluble Inorganic %	NOB Insoluble Non-Asbestos Inorganic %	** Asbestos % by PLM/DS	** Asbestos % by TEM

Analyzed by: Khaalid W. Perine
Date: 11/5/2024

Reviewed by: Karol H. Lu

**Quantitative Analysis (Semi/Full); Bulk Asbestos Analysis - PLM by Appd E to Subpt E, 40 CFR 763 or NYSDOH ELAP 198.1 for New York friable samples or NYSDOH ELAP 198.6 for New York NOB samples; TEM (Semi/Full) by EPA 600/R-93/116 (or NYSDOH ELAP 198.4; for New York samples). Analysis using Hitachi, Model H7000-Noran 7 System, Microscope, Serial #: 747-05-06. NAD = no asbestos detected during a quantitative analysis; NA = not analyzed; Trace = <1%; (SOF-V) = Sprayed On Fireproofing containing Vermiculite; (SM-V) = Surfacing Material containing Vermiculite; Quantitation for beginning weights of <0.1 grams should be considered as qualitative only; Qualitative Analysis: Asbestos analysis results of "Present" or "NVA = No Visible Asbestos" represents results for Qualitative PLM or TEM Analysis only (no accreditation coverage available from any regulatory agency for qualitative analyses): NVLAP (PLM) 200546-0, NYSDOH ELAP Lab 11480, NJ Lab ID #NY031.

Warning Note: PLM limitation, only TEM will resolve fibers <0.25 micrometers in diameter. TEM bulk analysis is representative of the fine grained matrix material and may not be representative of non-uniformly dispersed debris for which PLM evaluation is recommended (i.e. soils and other heterogenous materials).

Ambient Environmental, Inc.
Comprehensive Building Science Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

#2241033384

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client: Bell & Spina Architects	Project Name: SUNY Binghamton Roof Surveys	Project Street Address: 4400 Vestal Parkway E	Client Contact: Joseph Cavino
Project Number: 240807AC	Inspector: Kevin Jones	Project Address City/State: Binghamton, NY	Collection Date: 10/28/24
Sample TAT: 5 Day	Building Name: Health Services Building	Sampling Areas: Roofs	Comments: (Field) X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION / TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
01	01	Black EPDM (M)	Roof A Layer 1	N	G			
01	02	Black EPDM (M)	Roof B Layer 1	N	G			
02	01	Black Isoboard Facing (M)	Roof A Layer 2	N	G			
02	02	Black Isoboard Facing (M)	Roof B Layer 2	N	G			
03	01	Black Hot Mopped Tar (M)	Roof A on Isoboard Insulation	N	G			
03	02	Black Hot Mopped Tar (M)	Roof A on Isoboard Insulation	N	G			
04	01	2-Ply Vapor Retarder (M)	Roof A Layer 3	N	G			
04	02	2-Ply Vapor Retarder (M)	Roof A Layer 3	N	G			
05	01	Gypsum Deck (M)	Roof A Layer 4	F	G			
05	02	Gypsum Deck (M)	Roof B Layer 4	F	G			
06	01	Fiber Foarmboard (M)	Roof A Layer 5	N	G			
06	02	Fiber Foarmboard (M)	Roof A Layer 5	N	G			
07	01	Edge Flashing (M)	Roof B at edge	N	G			
07	02	Edge Flashing (M)	Roof B at edge	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I [signature]	10/30/24	16:00	[signature]	10/31/24	11:11
II					

Project Manager: C.D.

Results To: Results@ambient-env.com

Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: [signature]	11/4/24	18:37
b. QC by: [signature]	11/5/24	0225

Comments:

Ambient Environmental, Inc.
Comprehensive Building Science Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

#2241033384

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

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BULK SAMPLE LOCATION / TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
08	01	Cement Flue Lining (M)	Roof B	F	G			
08	02	Cement Flue Lining (M)	Roof B	F	G			
09	01	Exterior Brick (M)	Penthouse	F	G			
09	02	Exterior Brick (M)	Penthouse	F	G			
10	01	Exterior Brick Mortar (M)	Penthouse	F	G			
10	02	Exterior Brick Mortar (M)	Penthouse	F	G			
11	01	Black Seamseal Caulk (M)	Roof A	N	G			
11	02	Black Seamseal Caulk (M)	Roof B	N	G			
12	01	Gray Termbar Caulk (M)	Roof A at Penthouse	N	G			
12	02	Gray Termbar Caulk (M)	Roof A at Penthouse	N	G			
13	01	Gray Louver Caulk (M)	Penthouse	N	G			
13	02	Gray Louver Caulk (M)	Penthouse	N	G			
14	01	Brown Window Caulk (M)	Penthouse	N	G			
14	02	Brown Window Caulk (M)	Penthouse	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I	10/30/24	16:00		10/31/24	11:11
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By:	11/4/24	18:37
b. QC by:	11/5/24	0225

Comments:

Ambient Environmental, Inc.
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#224103384

BULK SAMPLE DATA AND CHAIN OF CUSTODY FORM

PROJECT INFORMATION

Client: Bell & Spina Architects	Project Name: SUNY Binghamton Roof Surveys	Project Street Address: 4400 Vestal Parkway E	Client Contact: Joseph Cavino
Project Number: 240807AC	Inspector: Kevin Jones	Project Address City/State: Binghamton, NY	Collection Date: 10/28/24
Sample TAT: 5 Day	Building Name: Health Services Building	Sampling Areas: Roofs	Comments: (Field) X Analyze to First Positive By Homogeneous Material X For Negative NOB PLM's, continue to TEM

BULK SAMPLE LOCATION

TYPE OF MATERIALS

Homogeneous Area Number	Bulk Sample ID Number	Sampled Material (T, S, M)	Sample Location	Friability (N/F)	Condition (G, D, SD)	Quantity (LF, SF, EA)	Homogeneous Areas	Asbestos Content (Type & %)
15	01	Gray Window Patch Caulk (M)	Monitor	N	G			
15	02	Gray Window Patch Caulk (M)	Monitor	N	G			
16	01	White Window Patch Caulk (M)	Monitor	N	G			
16	02	White Window Patch Caulk (M)	Monitor	N	G			

CHAIN OF CUSTODY

Relinquished By:	Date	Time	Received By:	Date	Time
I [signature]	10/30/24	16:00	[signature]	10/31/24	11:11
II					

Project Manager: C.D.	Results To: Results@ambient-env.com	Drawings: ___ Sample Locations ___ Material Locations

(T=TSI; S=Surfacing; M=Misc)

LAB INFORMATION

Lab Name	Date	Time
a. Analyzed By: [signature]	10/31/24	12:37
b. QC by: [signature]	11/1/24	0225

Comments:

ATTACHMENT B
LEAD-BASED PAINT TESTING RESULTS

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

Lead Based Paint Inspection Detailed Report

828 Washington Avenue
Albany, New York

INSPECTION SITE:	SUNY Binghamton Administration Building
INSPECTION DATE:	8/12/2024 - 8/13/2024
REPORT NUMBER:	240807AC
INSTRUMENT TYPE:	Viken Detection Pb200i XRF Lead Paint Analyzer 2327
ACTION LEVEL:	1.0 (mg/cm²)
Job ID:	240807AC
STATEMENT:	Paint conditions included in this report represent conditions observed by the inspector at the time of the inspection

Lead Based Paint Inspection Detailed Report

Inspection Date:	8/12/2024 - 8/13/2024	Inspection Site:	SUNY Binghamton Administration Building
Action Level:	1.0 (mg/cm²)		
Report Number:	240807AC		
Total Readings:	11		
Unit Started:	08/08/2024 12:03:42		
Unit Ended:	08/13/2024 13:01:55		

Read #	Result	Job	Room	-->RoomChoice	Structure	-->Member	Substrate	Wall	Location	Color	Lead (mg/cm²)	Mode
37	Negative	Admin	Misc	1	Room	Wall	Metal	A	1	White	0.2 mg/cm²	Action Level
38	Negative	Admin	Misc	1	Column		Metal	A	1	White	0.2 mg/cm²	Action Level
39	Negative	Admin	Misc	1	Beam		Metal	A	1	White	0.2 mg/cm²	Action Level
40	Negative	Admin	Misc	1	Beam		Metal	B	1	White	0.2 mg/cm²	Action Level
41	Negative	Admin	Misc	1	Column		Metal	B	1	White	0.2 mg/cm²	Action Level
42	Negative	Admin	Misc	1	Room	Wall	Metal	B	1	White	0.1 mg/cm²	Action Level
43	Negative	Admin	Misc	1	Door		Metal	D	1	Gray	0.3 mg/cm²	Action Level
44	Negative	Admin	Misc	1	Door	Frame	Metal	D	1	Gray	0.7 mg/cm²	Action Level
45	Positive	Admin	Misc	1	Vent		Metal	B	1	Red	1.9 mg/cm²	Action Level
58	Negative	Admin	Misc	1	A/C		Metal	D	1	White	0.2 mg/cm²	Action Level
59	Negative	Admin	Misc	1	A/C		Metal	D	2	White	0.1 mg/cm²	Action Level

------ END OF READINGS ------

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
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Lead Based Paint Inspection Detailed Report

828 Washington Avenue
Albany, New York

INSPECTION SITE:	SUNY Binghamton West Gymnasium
INSPECTION DATE:	8/8/2024 - 8/12/2024
REPORT NUMBER:	240807AC
INSTRUMENT TYPE:	Viken Detection Pb200i XRF Lead Paint Analyzer 2327
ACTION LEVEL:	1.0 (mg/cm²)
Job ID:	240807AC
STATEMENT:	Paint conditions included in this report represent conditions observed by the inspector at the time of the inspection

Lead Based Paint Inspection Detailed Report

Inspection Date:	8/8/2024 - 8/12/2024	Inspection Site:	SUNY Binghamton West Gymnasium
Action Level:	1.0 (mg/cm²)		
Report Number:	240807AC		
Total Readings:	6		
Unit Started:	08/08/2024 12:03:42		
Unit Ended:	08/13/2024 13:01:55		

Read #	Result	Job	Room	-->RoomChoice	Structure	-->Member	Substrate	Wall	Location	Color	Lead (mg/cm²)	Mode
7	Positive	Gym	Misc	1	I-Beam		Metal	C	1	Brown	4.5 mg/cm²	Action Level
8	Negative	Gym	Misc	1	Vent		Metal	C	1	Brown	0.2 mg/cm²	Action Level
9	Negative	Gym	Misc	1	Vent		Metal	C	2	Brown	0.1 mg/cm²	Action Level
10	Positive	Gym	Misc	2	Railing		Metal	C	2	Silver	3.3 mg/cm²	Action Level
23	Negative	Gym	Misc	3	Door		Metal	C	1	Brown	0.2 mg/cm²	Action Level
24	Negative	Gym	Misc	3	Door		Metal	C	2	Brown	0.2 mg/cm²	Action Level

------ END OF READINGS ------

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

Lead Based Paint Inspection Detailed Report

828 Washington Avenue
Albany, New York

INSPECTION SITE:	Health Services Building 4400 Vestal Parkway E Binghamton, New York
INSPECTION DATE:	10/28/2024 - 10/28/2024
REPORT NUMBER:	240807AC
INSTRUMENT TYPE:	Viken Detection Pb200i XRF Lead Paint Analyzer 2327
ACTION LEVEL:	1.0 (mg/cm²)
Job ID:	240807AC

STATEMENT: Paint conditions included in this report represent conditions observed by the inspector at the time of the inspection

Lead Based Paint Inspection Detailed Report

Inspection Date:	10/28/2024 - 10/28/2024	Inspection Site:	Health Services Building 4400 Vestal Parkway E Binghamton, New York
Action Level:	1.0 (mg/cm²)		
Report Number:	240807AC		
Total Readings:	9		
Unit Started:	10/28/2024 13:57:31		
Unit Ended:	10/28/2024 14:09:14		

Read #	Result	Job	Room	-->RoomChoice	Structure	-->Member	Substrate	Wall	Location	Color	Lead (mg/cm²)	Mode
7	Negative	Health	Misc	1	Door		Metal	D	1	Black	0.1 mg/cm²	Action Level
8	Negative	Health	Misc	1	Door	Frame	Metal	D	1	Black	0.1 mg/cm²	Action Level
9	Negative	Health	Misc	1	Vent		Metal	D	1	Black	0.2 mg/cm²	Action Level
10	Negative	Health	Misc	1	Vent		Metal	D	2	Black	0.1 mg/cm²	Action Level
11	Positive	Health	Misc	1	Door	Lintel	Metal	D	2	Black	26.8 mg/cm²	Action Level
12	Negative	Health	Misc	2	HVAC		Metal	A	1	Black	0.1 mg/cm²	Action Level
13	Negative	Health	Misc	2	HVAC		Metal	B	1	Black	0.0 mg/cm²	Action Level
14	Negative	Health	Misc	2	HVAC		Metal	C	1	Black	0.0 mg/cm²	Action Level
15	Negative	Health	Misc	2	HVAC		Metal	D	1	Black	0.2 mg/cm²	Action Level

------ END OF READINGS ------

ATTACHMENT C

PCB RESULTS AND LABORATORY ANALYSIS REPORT WITH CHAIN OF CUSTODY DOCUMENTATION

BELL & SPINA ARCHITECTS
SUNY BINGHAMTON
4400 VESTAL PARKWAY E, BINGHAMTON, NY
SUMMARY OF PCB SAMPLES AND ANALYSIS RESULTS

Material Description/Sample Location	Sample Number	Total PCB (PPM)	Quantity
Administration			
Black Seam Seal Caulk-Tower	PCB-01	<.525	N/A
Black Termbar Caulk Tower	PCB-02	4.920	N/A
Black flashing Caulk	PCB-03	5.760	N/A
Gray Seam Seal Caulk Lower	PCB-04	<.536	N/A
White Window Panel Caulk	PCB-05	<2.660	N/A
West Gym			
Brick Exp. Joint Caulk – Above Canopy (1)	PCB-01	9040.000	2.5 SF
Tan Louver Caulk – Exterior Wall from Canopy Roof (1)	PCB-02	146.000	2.5 SF
Black Seam Seal Caulk – C Roof	PCB-03	<.521	N/A
Black Termbar Caulk – F Roof	PCB-04	<.675	N/A
Gray Termbar Caulk – Roof	PCB-05	<.506	N/A
Gray Coping Caulk – E Roof	PCB-06	1.330	N/A
Gray Flashing Caulk – D Roof	PCB-07	<.527	N/A
Black Patch Caulk – C Roof	PCB-08	9.150	N/A
Brown Caulk – F Roof Overhand to Window	PCB-09	7.650	N/A
Silver Caulk – B Roof Flashing	PCB-10	<.541	N/A
Clear Caulk – H Roof Window	PCB-11	1.360	N/A
Health Services Building			
Black Seam seal Caulk (11)	PCB-01	<.540	N/A
Gray Termbar Caulk (12)	PCB-02	2.790	N/A
Gray Penthouse Louver Caulk (13)	PCB-03	39200.000	2.0 SF
Brown Penthouse Window Caulk (14)	PCB-04	7580.000	1.0 SF
Gray Window Patch Caulk (15)	PCB-05	1.320	N/A
White Window Patch Caulk (16)	PCB-06	<1.230	N/A

(1) These sample locations were misidentified in the field as Roof F (as listed on COC) but are more precisely taken from the areas indicated above.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: Administration Building
Number: 240807AC

Order #: 578534

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Result	RL*	Units	Analysis Date	Analyst
578534-001	PCB-1 / Black Seamseal Clk					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**<525**	524	µg/kg	08/21/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<477**	477	µg/kg	08/21/24	NM
578534-002	PCB-2 / Black Termbar Clk					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**4920**	531	µg/kg	08/21/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<483**	483	µg/kg	08/21/24	NM
578534-003	PCB-3 / Black Flashing Clk					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: Administration Building
Number: 240807AC

Order #: 578534

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
578534-003	PCB-3	Black Flashing Clk					
Aroclor - 1248		SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**5760**	502	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<457**	457	µg/kg	08/21/24	NM
578534-004	PCB-4	Gray Seamseal Clk					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**<536**	536	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<487**	487	µg/kg	08/21/24	NM
578534-005	PCB-5	White Window Panel Clk					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**<2660**	2660	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<2420**	2420	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: Administration Building
Number: 240807AC

Order #: 578534

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Result	RL*	Units	Analysis Date	Analyst
578534-08/22/24 10:14 AM						

Reviewed By: **Ahmed Elnasseh**
Analyst

Surrogate Recoveries

578534-001 - PCB	
DCB	78%
TCMX	86%
578534-002 - PCB	
DCB	100%
TCMX	105%
578534-003 - PCB	
DCB	95%
TCMX	69%
578534-004 - PCB	
DCB	131%
TCMX	93%
578534-005 - PCB	
DCB	144%
TCMX	134%

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Project: SUNY Binghamton Roof Surveys
Location: Administration Building
Number: 240807AC

Order #: 578534

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Location	Result	RL*	Units	Analysis Date	Analyst

State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 69247
Virginia	VELAP 12761

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

SCHNEIDER LABORATORIES GLOBAL, INC.
2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475
www.slabinc.com • info@slabinc.com

S 5

578534

V:\578\578534

ctrites 8/20/2024 9:29:00 AM
Federal Express 818286769110

Submitting Co.	Ambient Environmental, Inc.	State of Collection	NY	Required	☐ YES ☐ NO
828 Washington Avenue		Acct #	3639	Phone	518-482-0704
Albany, New York 12203		Email	Results@ambient-env.com		
Project Name	SUNY Binghamton Roof Surveys	PO #			
Project Location	Administration Building	Special Instructions	*NYS OGS RATES*		
Project Number	240807AC				
Collected By	Kevin Jones				

Turn Around Time **

- ☐ Same day *
- ☐ 1 business day
- ☐ 2 business days
- ☐ 3 business days
- ☒ 5 business days

* not available for all tests

** A job received past 3 PM will begin its TAT the next business day

Please schedule rush tests in advance

Matrix

- ☐ Paint
- ☒ Bulk
- ☐ Soil
- ☐ Wipe
- ☐ Ground Water
- ☐ Waste Water

Test selection for all Samples listed below (Circle desired method)

- ☐ VOC (8260/624)
- ☐ SVOC (8270/625)
- ☐ Pesticides (8081/608)
- ☐ Herbicides (8151)
- ☐ Chlordane (8081/608)
- ☐ Toxaphene (8081/608)
- ☒ PCB (8082)
- ☐ TPH-DRO (8015)
- ☐ TPH-GRO (8015)
- ☐ BTEX (8260/8021)
- ☐ MTBE (8260/8021)
- ☐ Naphthalene (8260/8270)

TCLP

- ☐ Volatiles
- ☐ Semi-Volatiles
- ☐ Herbicides
- ☐ Pesticides
- ☐ Full TCLP (10 Day)

Miscellaneous

- ☐ Chlorides (300/9056)
- ☐ Silica (7602)
- ☐ Sulfates (300/9056)
- ☐ PAH (8270/625)
- ☐ Oil and Grease (1664)
- ☐ TPH (EPA 418.1)

Individual Sample Requests

Sample #	Date Sampled	Time Sampled	# of Containers	Sample Identification	Wipe Area
PCB-1	8/13/24	-	-	Black Seamseal Caulk - Tower	-
PCB-2	8/13/24	-	-	Black Termbar Caulk - Tower	-
PCB-3	8/13/24	-	-	Black Flashing Caulk - Lower	-
PCB-4	8/13/24	-	-	Gray Seamseal Caulk - Lower	-
PCB-5	8/13/24	-	-	White Window Panel Caulk - Lower	-

For Aqueous and Solid samples ensure enough sample is sent for duplicate and spike analyses

Relinquished By: Kevin Jones Signature: _____ Date/Time 8/19/24 16:00

! ALL SHADED FIELDS MUST BE FILLED TO AVOID DELAYS !

Chain-of-Custody documentation continued internally

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
578533-001	PCB-1	Brick Exp Jt Caulk F Roof					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**9040000**	497000	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<453000**	452000	µg/kg	08/21/24	NM
578533-002	PCB-2	Tan Louver Caulk F Roof					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**146000**	10300	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<9400**	9390	µg/kg	08/21/24	NM
578533-003	PCB-3	Black Seamseal Caulk C					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
578533-003	PCB-3	Black Seamseal Caulk C					
Aroclor - 1248		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**<521**	521	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<474**	474	µg/kg	08/21/24	NM
578533-004	PCB-4	Black Termbar Caulk F					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**<675**	675	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<614**	613	µg/kg	08/21/24	NM
578533-005	PCB-5	Gray Termbar Caulk Roof					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**<506**	505	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<460**	459	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Analysis Report

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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Location / Result	RL*	Units	Analysis Date	Analyst
578533-006	PCB-6	Gray Coping Caulk E Roof				
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**1330**	534	µg/kg	08/21/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<485**	485	µg/kg	08/21/24	NM
578533-007	PCB-7	Gray Flashing Caulk D				
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**<527**	527	µg/kg	08/21/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<479**	479	µg/kg	08/21/24	NM
578533-008	PCB-8	Black Patch Caulk C Roof				
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
578533-008	PCB-8	Black Patch Caulk C Roof					
Aroclor - 1248		SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**9150**	507	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<461**	461	µg/kg	08/21/24	NM
578533-009	PCB-9	Brown Caulk F Roof					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**7650**	514	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<468**	467	µg/kg	08/21/24	NM
578533-010	PCB-10	Silver Caulk B Roof					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**<541**	541	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<492**	491	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
578533-011	PCB-11	Clear Caulk H Roof					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**1360**	670	µg/kg	08/21/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<609**	609	µg/kg	08/21/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Address: 828 Washington Ave
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Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Result	RL*	Units	Analysis Date	Analyst
578533-08/22/24 10:13 AM						

Reviewed By: **Ahmed Elnasseh**
Analyst

Surrogate Recoveries

578533-001 - PCB	
DCB	D
TCMX	D
578533-002 - PCB	
DCB	D
TCMX	D
578533-003 - PCB	
DCB	88%
TCMX	131%
578533-004 - PCB	
DCB	122%
TCMX	94%
578533-005 - PCB	
DCB	108%
TCMX	83%
578533-006 - PCB	
DCB	115%
TCMX	110%
578533-007 - PCB	
DCB	96%
TCMX	85%
578533-008 - PCB	
DCB	129%
TCMX	104%
578533-009 - PCB	
DCB	MI
TCMX	MI
578533-010 - PCB	
DCB	134%

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Attn:

Project: SUNY Binghamton Roof Surveys
Location: West Gym
Number: 240807AC

Order #: 578533

Matrix Bulk
Received 08/20/24
Reported 08/22/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
TCMX		116%					
578533-011 - PCB							
DCB		120%					
TCMX		69%					

State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 69247
Virginia	VELAP 12761

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

SCHNEIDER LABORATORIES GLOBAL, INC.
2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475
www.slabinc.com • info@slabinc.com

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ctrites 8/20/2024 9:29:00 AM

Federal Express 818286769110

Submitting Co.	Ambient Environmental, Inc.	**State of Collection**	NY	**Cert. Required**	☐ YES ☐ NO
828 Washington Avenue		**Acct #**	3639	**Phone**	518-482-0704
Albany, New York 12203		**Email**	Results@ambient-env.com		
Project Name	SUNY Binghamton Roof Surveys	**PO #**			
Project Location	West Gym	**Special Instructions**	*NYS OGS RATES*		
Project Number	240807AC				
Collected By	Kevin Jones				

Turn Around Time **

- ☐ Same day *
- ☐ 1 business day
- ☐ 2 business days
- ☐ 3 business days
- ■ 5 business days

* not available for all tests

Matrix

- ☐ Paint
- ■ Bulk
- ☐ Soil
- ☐ Wipe
- ☐ Ground Water
- ☐ Waste Water

** A job received past 3 PM will begin its TAT the next business day

Please schedule rush tests in advance

Test selection for all Samples listed below (Circle desired method)

- ☐ VOC (8260/624)
- ☐ SVOC (8270/625)
- ☐ Pesticides (8081/608)
- ☐ Herbicides (8151)
- ☐ Chlordane (8081/608)
- ☐ Toxaphene (8081/608)
- ■ PCB (8082)
- ☐ TPH-DRO (8015)
- ☐ TPH-GRO (8015)
- ☐ BTEX (8260/8021)
- ☐ MTBE (8260/8021)
- ☐ Naphthalene (8260/8270)

TCLP

- ☐ Volatiles
- ☐ Semi-Volatiles
- ☐ Herbicides
- ☐ Pesticides
- ☐ Full TCLP (10 Day)

Miscellaneous

- ☐ Chlorides (300/9056)
- ☐ Silica (7602)
- ☐ Sulfates (300/9056)
- ☐ PAH (8270/625)
- ☐ Oil and Grease (1664)
- ☐ TPH (EPA 418.1)

Individual Sample Requests

Sample #	Date Sampled	Time Sampled	# of Containers	Sample Identification	Wipe Area
PCB-1	8/13/24	-	-	Brick Exp. Joint Caulk - F Roof	-
PCB-2	8/13/24	-	-	Tan Louver Caulk - F Roof	-
PCB-3	8/13/24	-	-	Black Seamseal Caulk - C Roof	-
PCB-4	8/13/24	-	-	Black Termbar Caulk - F Roof	-
PCB-5	8/13/24	-	-	Gray Termbar Caulk - Roof	-
PCB-6	8/13/24	-	-	Gray Coping Caulk - E Roof	-
PCB-7	8/13/24	-	-	Gray Flashing Caulk - D Roof	-
PCB-8	8/13/24	-	-	Black Patch Caulk - C Roof	-
PCB-9	8/13/24	-	-	Brown Caulk - F Roof overhang to window	-
PCB-10	8/13/24	-	-	Silver Caulk - B Roof Flashing	-

For Aqueous and Solid samples ensure enough sample is sent for duplicate and spike analyses

Relinquished By: Kevin Jones Signature: Kevin Jones Date/Time 8/19/24 16:00

! ALL SHADED FIELDS MUST BE FILLED TO AVOID DELAYS !

Chain-of-Custody documentation continued internally

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Submitting Co.	Ambient Environmental, Inc.	**State of Collection**	NY	**Cert. Required**	☐ YES ☐ NO
828 Washington Avenue		**Acct #**	3639	**Phone**	518-482-0704
Albany, New York 12203		**Email**	Results@ambient-env.com		
Project Name	SUNY Binghamton Roof Surveys	**PO #**			
Project Location	West Gym	**Special Instructions**	*NYS OGS RATES*		
Project Number	240807AC				
Collected By	Kevin Jones				

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- ☐ 2 business days
- ☐ 3 business days
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* not available for all tests

** A job received past 3 PM will begin its TAT the next business day

Please schedule rush tests in advance

Matrix

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- ☒ Bulk
- ☐ Soil
- ☐ Wipe
- ☐ Ground Water
- ☐ Waste Water

Test selection for all Samples listed below (Circle desired method)

- ☐ VOC (8260/624) ☐ SVOC (8270/625)
- ☐ Pesticides (8081/608) ☐ Herbicides (8151)
- ☐ Chlordane (8081/608) ☐ Toxaphene (8081/608)
- ☒ PCB (8082) ☐ TPH-DRO (8015) ☐ TPH-GRO (8015)
- ☐ BTEX (8260/8021) ☐ MTBE (8260/8021) ☐ Naphthalene (8260/8270)

TCLP

- ☐ Volatiles
- ☐ Semi-Volatiles
- ☐ Herbicides
- ☐ Pesticides
- ☐ Full TCLP (10 Day)

Miscellaneous

- ☐ Chlorides (300/9056) ☐ Silica (7602)
- ☐ Sulfates (300/9056) ☐ PAH (8270/625)
- ☐ Oil and Grease (1664) ☐ TPH (EPA 418.1)

Individual Sample Requests

Sample #	Date Sampled	Time Sampled	# of Containers	Sample Identification	Wipe Area
PCB-11	8/13/24	-	-	Clear Caulk - H Roof Window	-

For Aqueous and Solid samples ensure enough sample is sent for duplicate and spike analyses

Relinquished By: Kevin Jones Signature: Kevin Jones Date/Time 8/19/24 16:00

! ALL SHADED FIELDS MUST BE FILLED TO AVOID DELAYS !

Chain-of-Custody documentation continued internally

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: Health Services Building
Number: 240807AC

Order #: 590982

Matrix Bulk
Received 10/31/24
Reported 11/07/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Result	RL*	Units	Analysis Date	Analyst
590982-001	PCB-1 / Black Seamseal Caulk/11					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**<540**	540	µg/kg	11/05/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<491**	491	µg/kg	11/05/24	NM
590982-002	PCB-2 / Gray Termbar Caulk/12					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**2790**	535	µg/kg	11/05/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<486**	486	µg/kg	11/05/24	NM
590982-003	PCB-3 / Gray Penthouse Caulk/13					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

Analysis Report

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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: Health Services Building
Number: 240807AC

Order #: 590982

Matrix Bulk
Received 10/31/24
Reported 11/07/24

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Result	RL*	Units	Analysis Date	Analyst
590982-003	PCB-3	Gray Penthouse Caulk/13					
Aroclor - 1248		SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**39200000**	2720000	µg/kg	11/05/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<2470000**	2470000	µg/kg	11/05/24	NM
590982-004	PCB-4	Brown Penthouse Win Caulk					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**7580000**	491000	µg/kg	11/05/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<447000**	446000	µg/kg	11/05/24	NM
590982-005	PCB-5	Gray Win Patch Caulk/15					
Semi-volatile Organic Compounds							
Aroclor - 1016		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1221		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1232		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1242		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1248		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1254		SW846 8082A / 3550C	**1320**	518	µg/kg	11/05/24	NM
Aroclor - 1260		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1262		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM
Aroclor - 1268		SW846 8082A / 3550C	**<471**	471	µg/kg	11/05/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Customer: Ambient Environmentals LLC. (3639)
Address: 828 Washington Ave
Albany, NY 12203-1622

Attn:

Project: SUNY Binghamton Roof Surveys
Location: Health Services Building
Number: 240807AC

Order #: 590982

Matrix Bulk
Received 10/31/24
Reported 11/07/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Result	RL*	Units	Analysis Date	Analyst
590982-006	PCB-6 / White Win Patch Caulk/16					
Semi-volatile Organic Compounds						
Aroclor - 1016	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1221	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1232	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1242	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1248	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1254	SW846 8082A / 3550C	**<1230**	1230	µg/kg	11/05/24	NM
Aroclor - 1260	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1262	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM
Aroclor - 1268	SW846 8082A / 3550C	**<1120**	1120	µg/kg	11/05/24	NM

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. Solid PPM = mg/kg | PPB = µg/kg and Water PPM = mg/L | PPB = µg/L. The test results apply to the sample as received.

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Order #: 590982

Matrix Bulk
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Reported 11/07/24

PO Number:

Sample ID / Parameter	Cust. Sample ID / Method	Result	RL*	Units	Analysis Date	Analyst
590982-11/07/24 05:30 PM						

Reviewed By: **Ahmed Elnasseh**
Analyst

Surrogate Recoveries

590982-001 - PCB	
DCB	113%
TCMX	69%
590982-002 - PCB	
DCB	118%
TCMX	69%
590982-003 - PCB	
DCB	D
TCMX	D
590982-004 - PCB	
DCB	D
TCMX	D
590982-005 - PCB	
DCB	105%
TCMX	88%
590982-006 - PCB	
DCB	112%
TCMX	69%

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State Certifications

Method	Parameter	New York	Virginia
SW846 8082A	Aroclor - 1016	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1221	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1232	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1242	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1248	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1254	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1260	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1262	ELAP Certified	VELAP Certified
SW846 8082A	Aroclor - 1268	ELAP Certified	VELAP Certified

State	Certificate Number
New York	ELAP 69247
Virginia	VELAP 12761

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590982

V:\590\590982

lkyger 10/31/2024 9:23:46 AM
Federal Express 818286769614

Submitting Co.	Ambient Environmental, Inc.	State of Collection	NY	Cert. Required	☐ YES ☐ NO
828 Washington Avenue		Acct #	3639	Phone	518-482-0704
Albany, New York 12203		Email	Results@ambient-env.com		
Project Name	SUNY Binghamton Roof Surveys	PO #			
Project Location	Health Services Building	Special Instructions			
Project Number	240807AC				
Collected By	Kevin Jones				

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- ☒ 5 business days

* not available for all tests

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- ☒ Bulk
- ☐ Soil
- ☐ Wipe
- ☐ Ground Water
- ☐ Waste Water

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Please schedule rush tests in advance

Test selection for all Samples listed below (Circle desired method)

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- ☐ SVOC (8270/625)
- ☐ Pesticides (8081/608)
- ☐ Herbicides (8151)
- ☐ Chlordane (8081/608)
- ☐ Toxaphene (8081/608)
- ☒ PCB (8082)
- ☐ TPH-DRO (8015)
- ☐ TPH-GRO (8015)
- ☐ BTEX (8260/8021)
- ☐ MTBE (8260/8021)
- ☐ Naphthalene (8260/8270)

TCLP

- ☐ Volatiles
- ☐ Semi-Volatiles
- ☐ Herbicides
- ☐ Pesticides
- ☐ Full TCLP (10 Day)

Miscellaneous

- ☐ Chlorides (300/9056)
- ☐ Silica (7602)
- ☐ Sulfates (300/9056)
- ☐ PAH (8270/625)
- ☐ Oil and Grease (1664)
- ☐ TPH (EPA 418.1)

Individual Sample Requests

Sample #	Date Sampled	Time Sampled	# of Containers	Sample Identification	Wipe Area
PCB-1	10/28/24	-	-	Black Seamseal Caulk (11)	-
PCB-2	10/28/24	-	-	Gray Termbar Caulk (12)	-
PCB-3	10/28/24	-	-	Gray Penthouse Louver Caulk (13)	-
PCB-4	10/28/24	-	-	Brown Penthouse Window Caulk (14)	-
PCB-5	10/28/24	-	-	Gray Window Patch Caulk (15)	-
PCB-6	10/28/24	-	-	White Window Patch Caulk (16)	

For Aqueous and Solid samples ensure enough sample is sent for duplicate and spike analyses

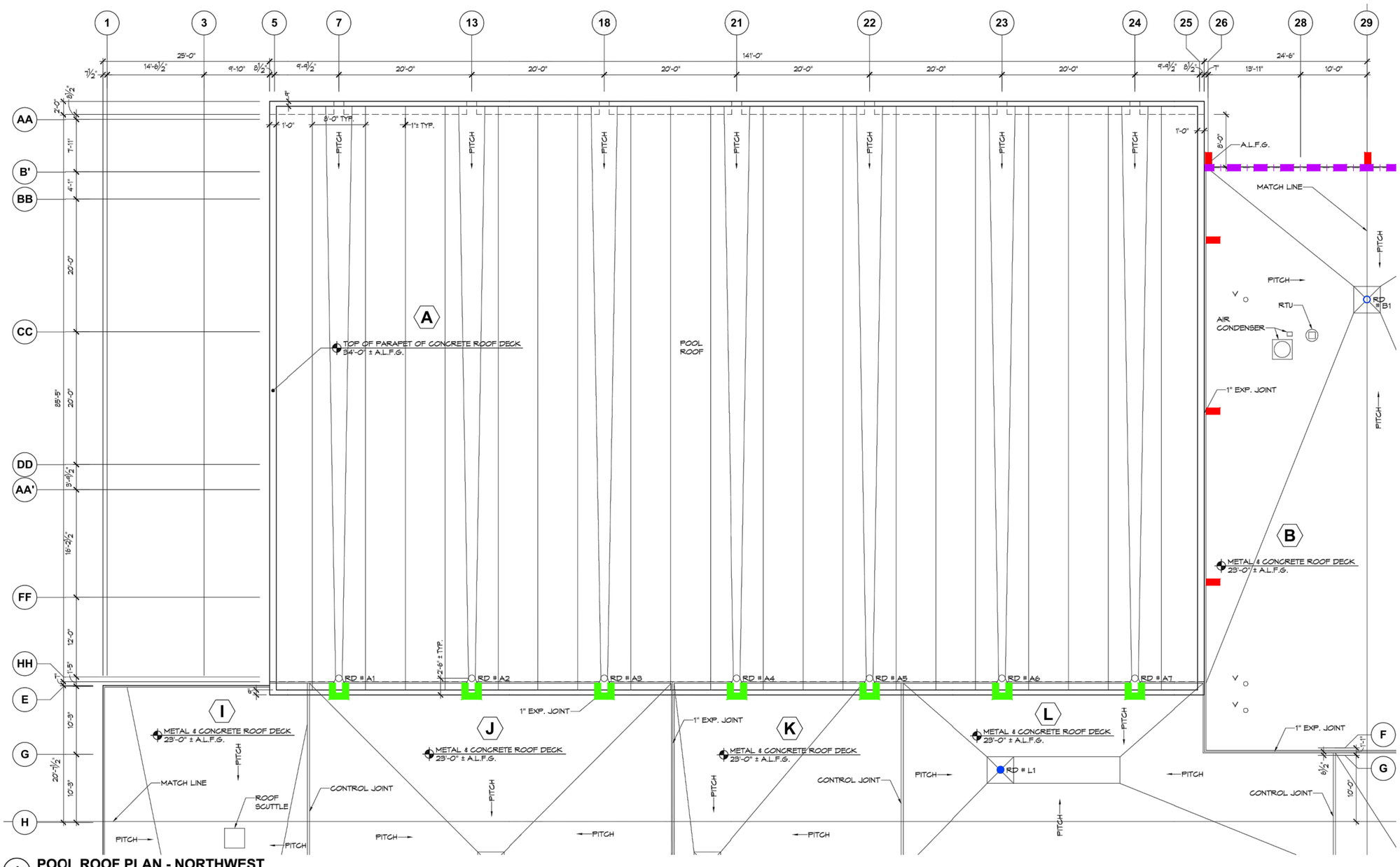
Relinquished By: Kevin Jones Signature: Kevin Jones Date/Time ~~8/19/24 16:00~~ 10/30/24

! ALL SHADED FIELDS MUST BE FILLED TO AVOID DELAYS ! 16.00

Chain-of-Custody documentation continued internally

ATTACHMENT D

HAZARDOUS MATERIAL LOCATION DRAWINGS
ROOF LAYER DRAWING



1 **POOL ROOF PLAN - NORTHWEST**
SCALE: 1/8" = 1'-0"

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

Ambient Environmental, Inc.
Building Science and EHS Solutions
828 Washington Avenue, Albany, NY 12203
PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

- (13-01) TAR ON FLASHING AT PILASTER
- (21-01) BLACK TERM BAR CAULK
- (31-01) ROOF DRAIN MUDDED FITTING
- (PCB-01) BRICK EXPANSION JOINT CAULK

REVISIONS

PROJECT LOCATION

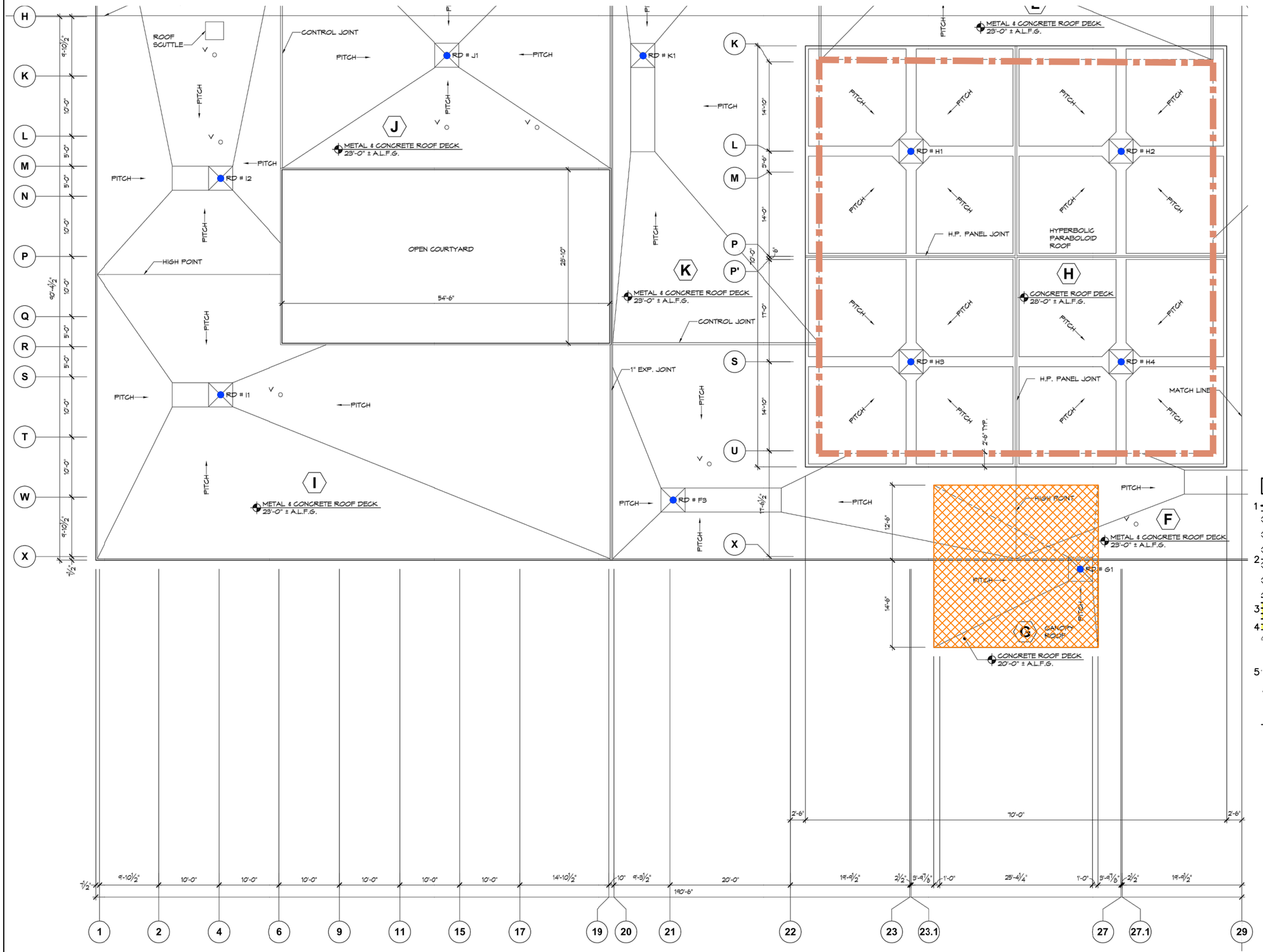
SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

WEST GYM - POOL
HAZARDOUS MATERIAL
LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.
HAZ-101



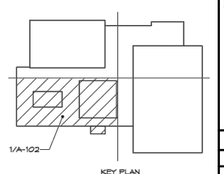
1 LOBBY ROOF PLAN - SOUTHWEST

SCALE: 1/8" = 1'-0"

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

ROOF-G LAYERS

1. WHITE EDPM
2. ISOBOARD INSULATION
3. (08-01) BUILT-UP VAPOR
4. (09-01) SILVER COATED TAR
5. CONCRETE DECK



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www.ambient-env.com

LEGEND

- (08-01) BUILT-UP VAPOR BARRIER AND (09-01) SILVER COATED TAR ON CONCRETE DECK
- (26-01) BROWN CAULK ON TOP OF WINDOW FRAME
- (31-01) ROOF DRAIN MUDDED FITTING

REVISIONS

PROJECT LOCATION

SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

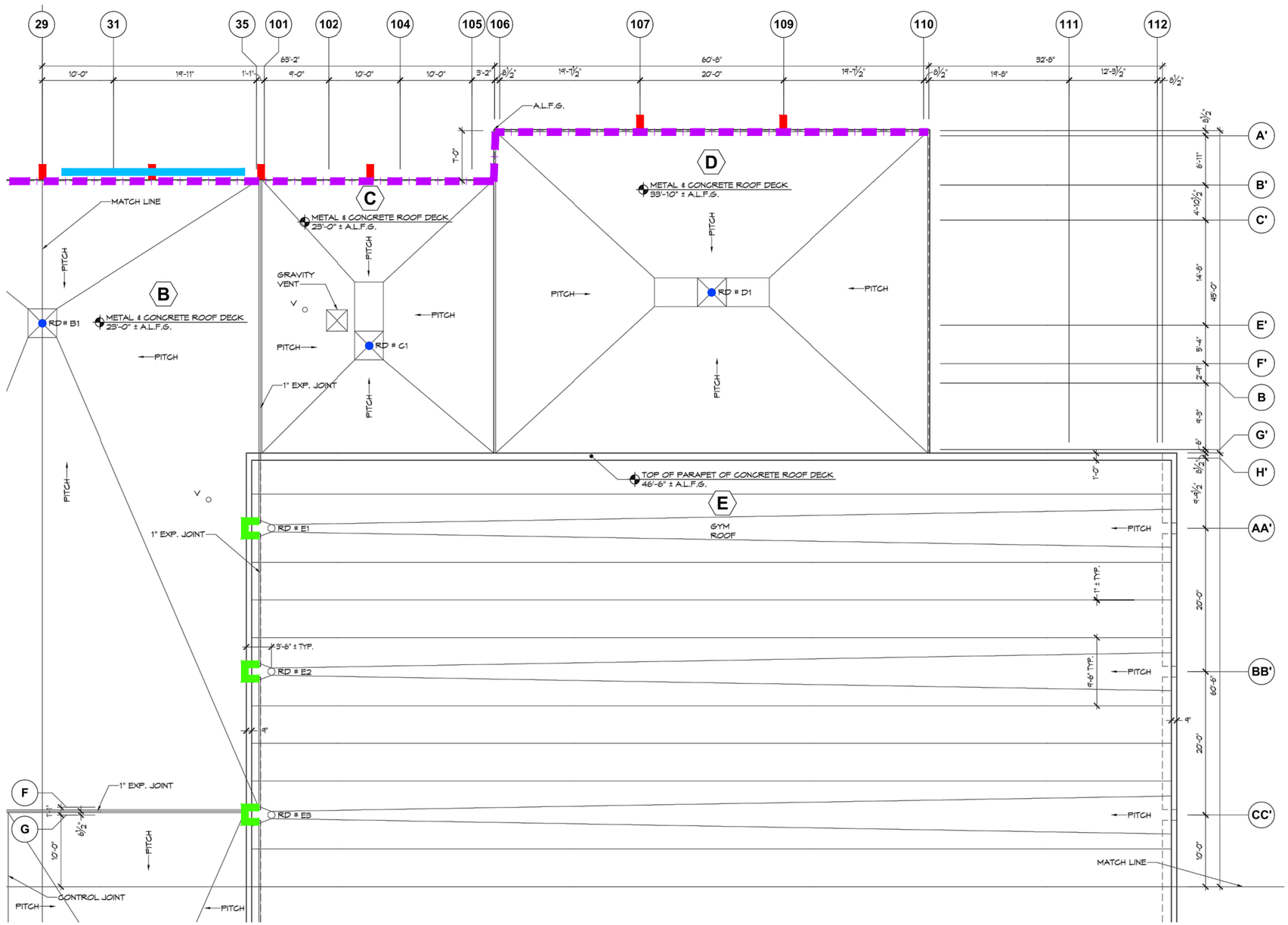
DRAWING TITLE

WEST GYM - LOBBY
MATERIAL LOCATION
PLAN

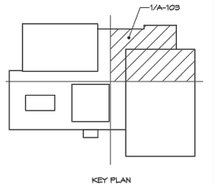
DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.

HAZ-102



1 GYM NORTH ROOF PLAN - NORTHEAST
SCALE: 1/8" = 1'-0"



*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

- (13-01) TAR ON FLASHING AT PILASTER
- (19-01) AND (PCB-02) TAN LOUVER CAULK
- (21-01) BLACK TERM BAR CAULK
- (31-01) ROOF DRAIN MUDDED FITTING
- (PCB-01) BRICK EXPANSION JOINT CAULK

REVISIONS

PROJECT LOCATION

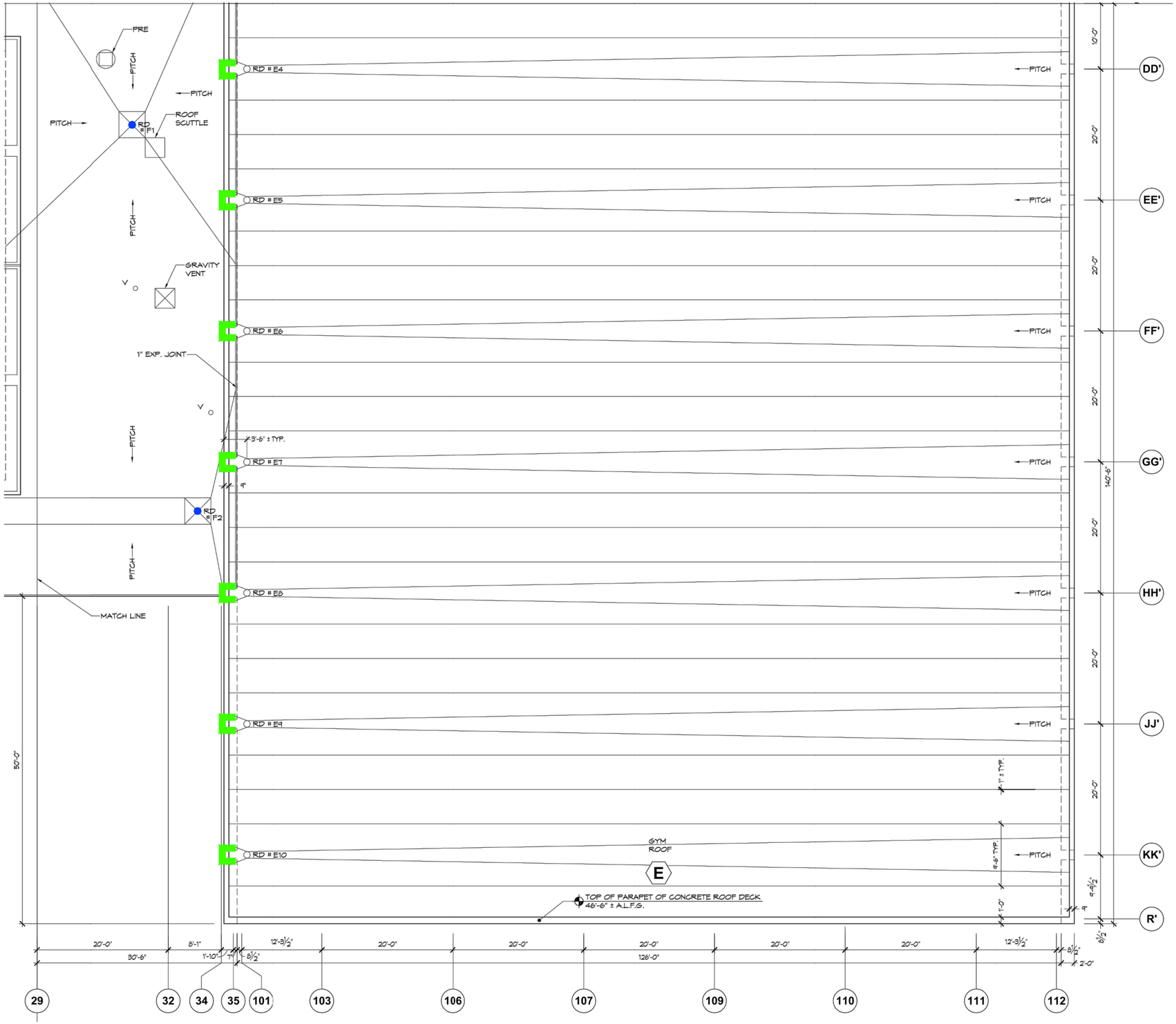
SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

WEST GYM - GYM NORTH
MATERIAL LOCATION
PLAN

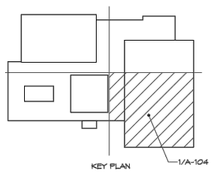
DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.
HAZ-103



1 **GYM SOUTH ROOF PLAN - SOUTHEAST**
SCALE: 1/8" = 1'-0"

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT



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LEGEND

- (13-01) TAR ON FLASHING AT PILASTER
- (31-01) ROOF DRAIN MUDDED FITTING

REVISIONS		

PROJECT LOCATION

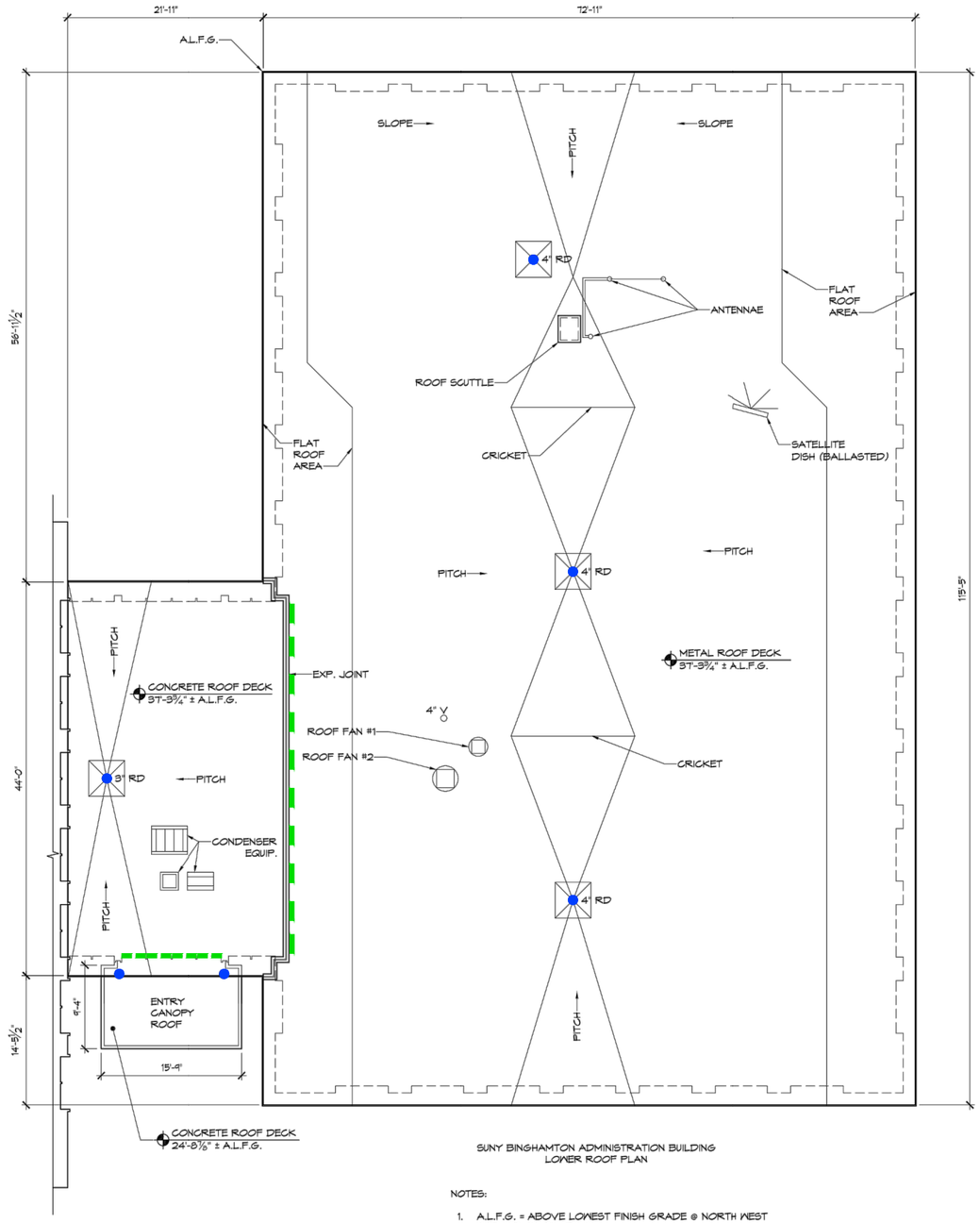
SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

WEST GYM - SOUTH
MATERIAL LOCATION
PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.
HAZ-104

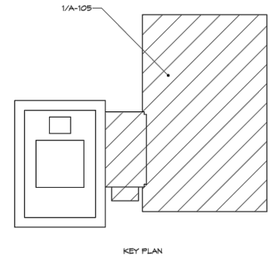


SUNY BINGHAMTON ADMINISTRATION BUILDING
LOWER ROOF PLAN

NOTES:

1. A.L.F.G. = ABOVE LOWEST FINISH GRADE @ NORTH WEST CORNER OF BUILDING.

1 ADMINISTRATION BUILDING - LOWER ROOF PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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www.ambient-env.com

LEGEND

(16-02) WHITE WINDOW CAULK ON METAL PANEL

(ASSUMED) ROOF DRAIN MUDDED FITTING

REVISIONS

PROJECT LOCATION

SUNY Binghamton
Administration Building
4400 Vestal Parkway East
Binghamton, New York

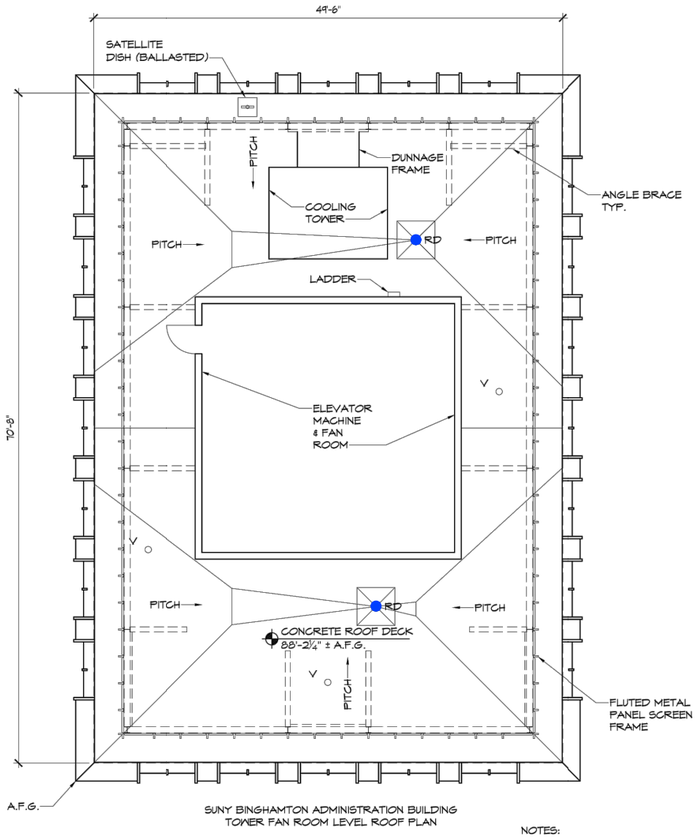
DRAWING TITLE

ADMINISTRATION BUILDING - LOWER LEAD BASED PAINT ROOM LOCATION PLAN

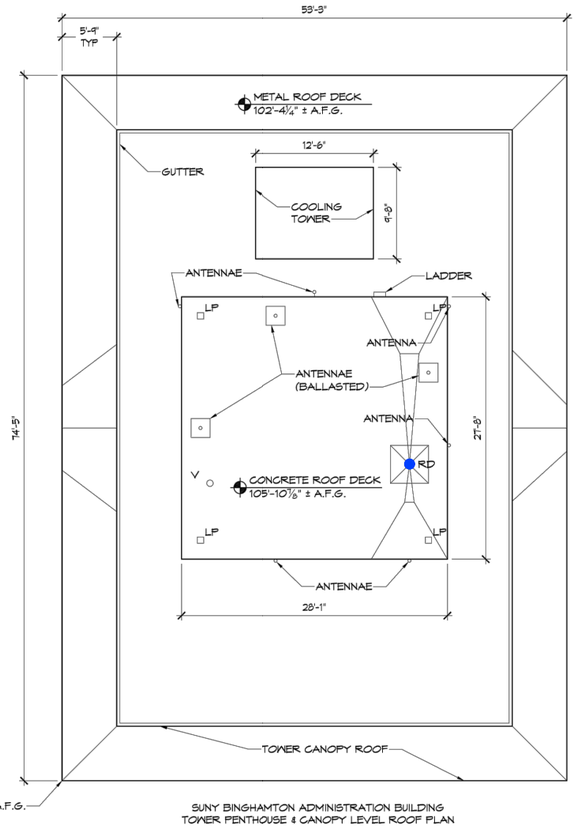
DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.

HAZ-105



SUNY BINGHAMTON ADMINISTRATION BUILDING
TOWER FAN ROOM LEVEL ROOF PLAN



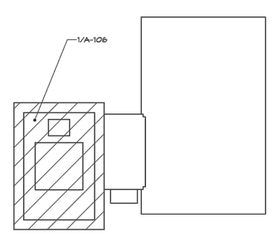
SUNY BINGHAMTON ADMINISTRATION BUILDING
TOWER PENTHOUSE & CANOPY LEVEL ROOF PLAN

NOTES:

1. A.F.G. = ABOVE FINISH GRADE @ SOUTH WEST CORNER OF TOWER.

1 ADMINISTRATION BUILDING - TOWER ROOF PLANS

SCALE: 1/8" = 1'-0"



KEY PLAN

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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LEGEND

- (ASSUMED) ROOF DRAIN MUDDED FITTING

REVISIONS		

PROJECT LOCATION

SUNY Binghamton
Administration Building
4400 Vestal Parkway East
Binghamton, New York

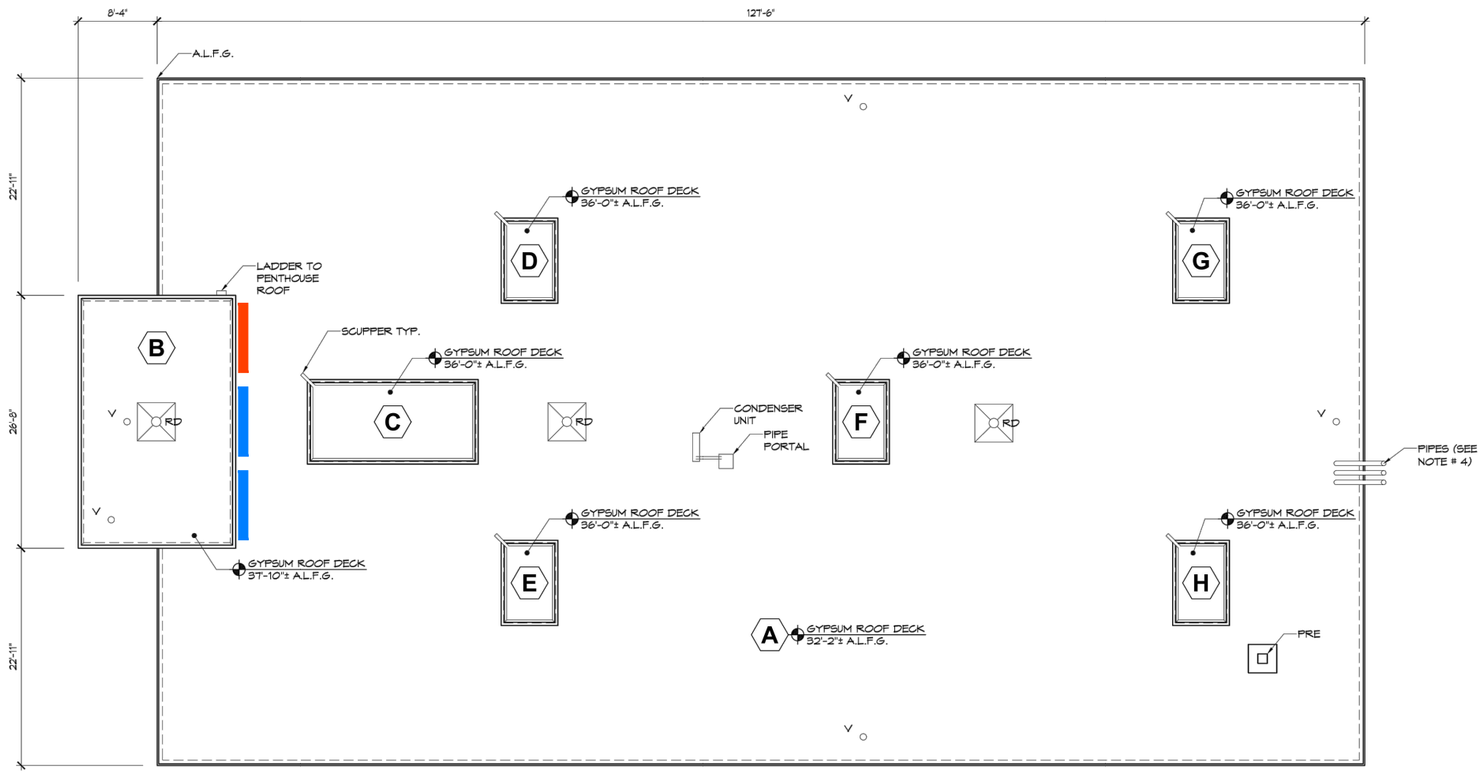
DRAWING TITLE

ADMINISTRATION BUILDING - TOWER MATERIAL LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.

HAZ-106



SUNY BINGHAMTON HEALTH SERVICES BUILDING
ROOF PLAN

NOTES:

1. A.L.F.G. = ABOVE LOWEST FINISH GRADE @ NORTH EAST CORNER OF BUILDING.
2. THERE IS NO ROOF SCUTTLE OR OTHER BUILT-IN ACCESS TO ROOF.
3. STRUCTURAL DRAWINGS INDICATE THAT THE ROOF DECK IS NOT SLOPED TO DRAIN.
4. PIPES AT ROOF EDGE ARE ABOVE THE ROOF AND ARE NOT ROOF PENETRATING.

1 HEALTH SERVICES - ROOF PLAN
SCALE: 1/8" = 1'-0"

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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www.ambient-env.com

LEGEND

- (PCB-3) GRAY LOUVER AND DOOR CAULK ON PENTHOUSE
- (PCB-4) BROWN WINDOW CAULK ON PENTHOUSE

REVISIONS

PROJECT LOCATION

SUNY Binghamton
Health Services Building
4400 Vestal Parkway East
Binghamton, New York

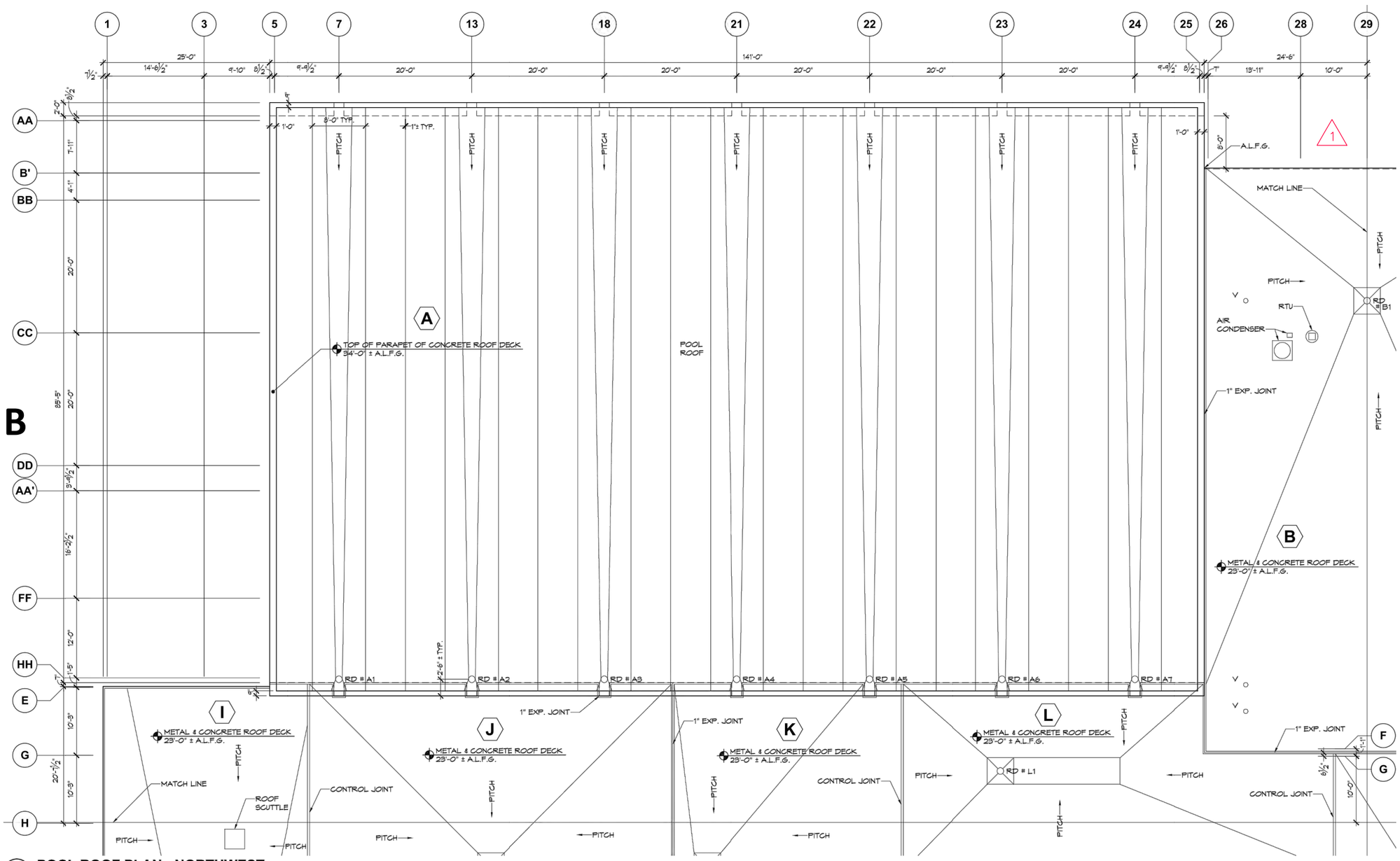
DRAWING TITLE

HEALTH SERVICES
MATERIAL LOCATION
PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.
HAZ-107

C



1 **POOL ROOF PLAN - NORTHWEST**
SCALE: 1/8" = 1'-0"

A

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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Building Science and EHS Solutions
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PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

X XRF ROOM NUMBER

X BUILDING SIDE

REVISIONS

PROJECT LOCATION

SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

WEST GYM - POOL LEAD BASED PAINT ROOM LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

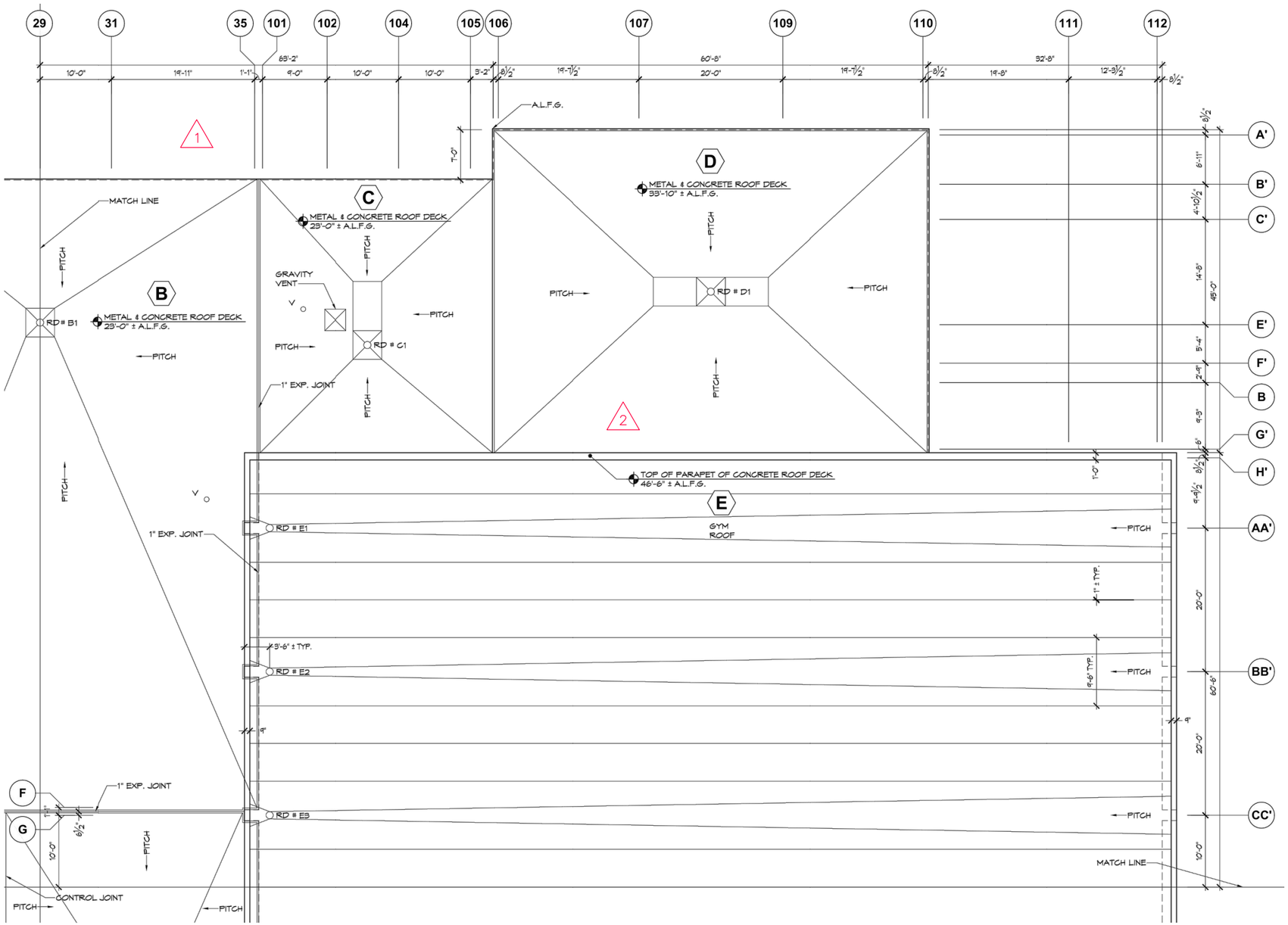
DWG. NO.

PB-101

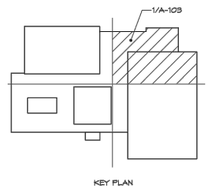
C

B

D



1 **GYM NORTH ROOF PLAN - NORTHEAST**
SCALE: 1/8" = 1'-0"



A

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

X XRF ROOM NUMBER

X BUILDING SIDE

REVISIONS		

PROJECT LOCATION

SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

WEST GYM - GYM NORTH
LEAD BASED PAINT ROOM
LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.

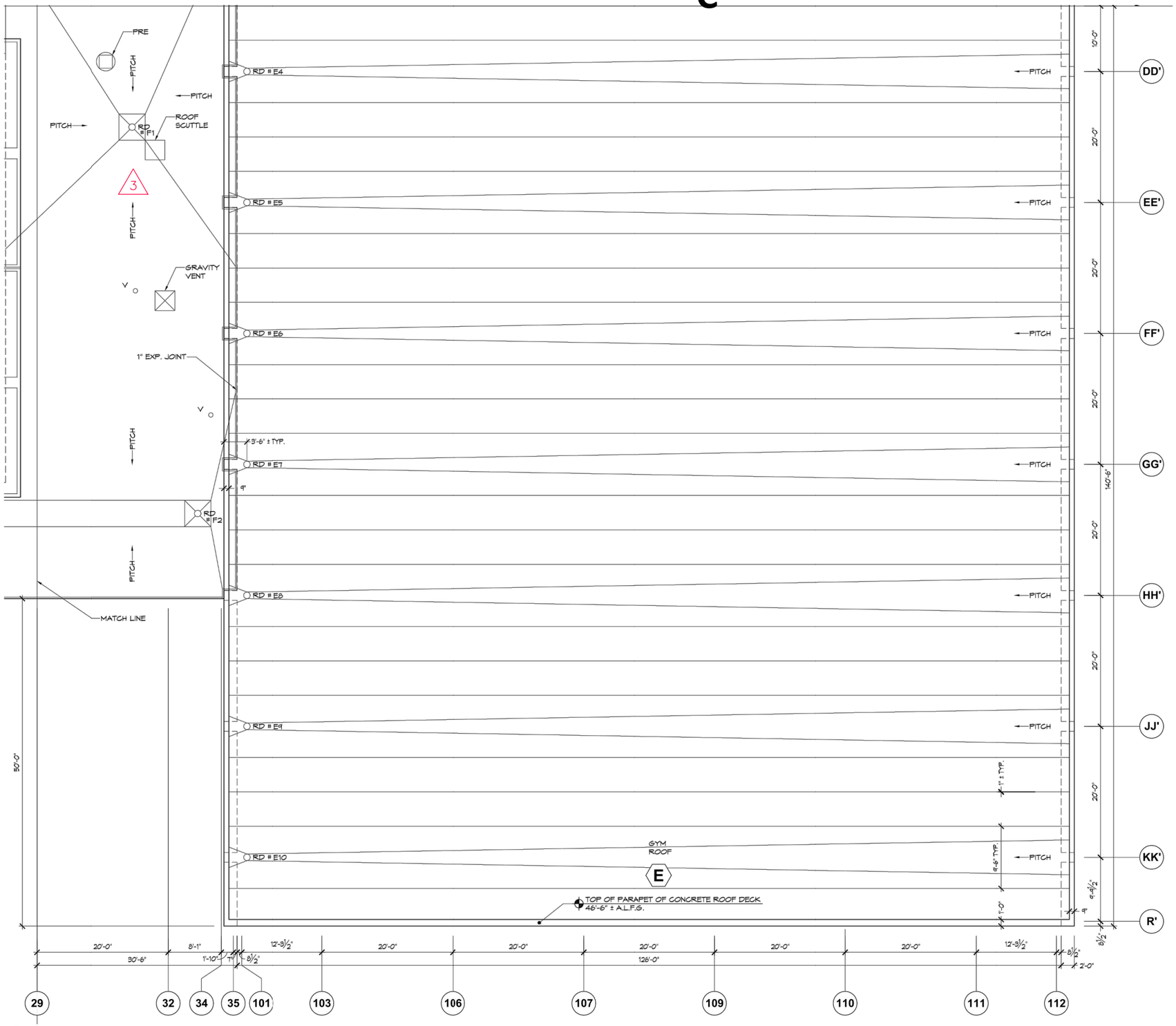
PB-103

C

B

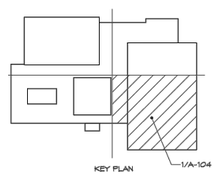
D

A



1 **GYM SOUTH ROOF PLAN - SOUTHEAST**
SCALE: 1/8" = 1'-0"

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT



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Building Science and EHS Solutions
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PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

X XRF ROOM NUMBER

X BUILDING SIDE

REVISIONS		

PROJECT LOCATION

SUNY Binghamton
West Gym Pool
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

WEST GYM - SOUTH LEAD BASED PAINT ROOM LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

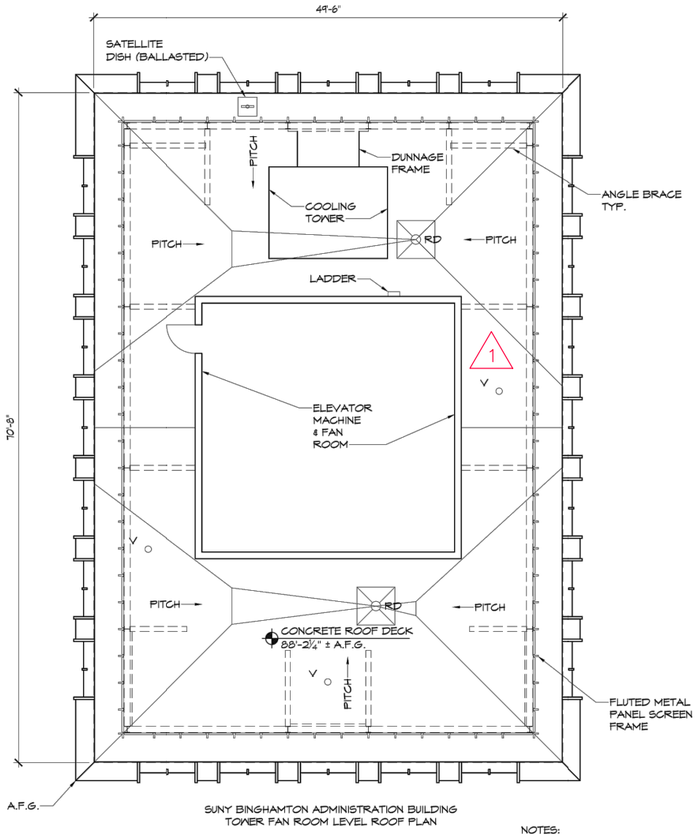
DWG. NO.

PB-104

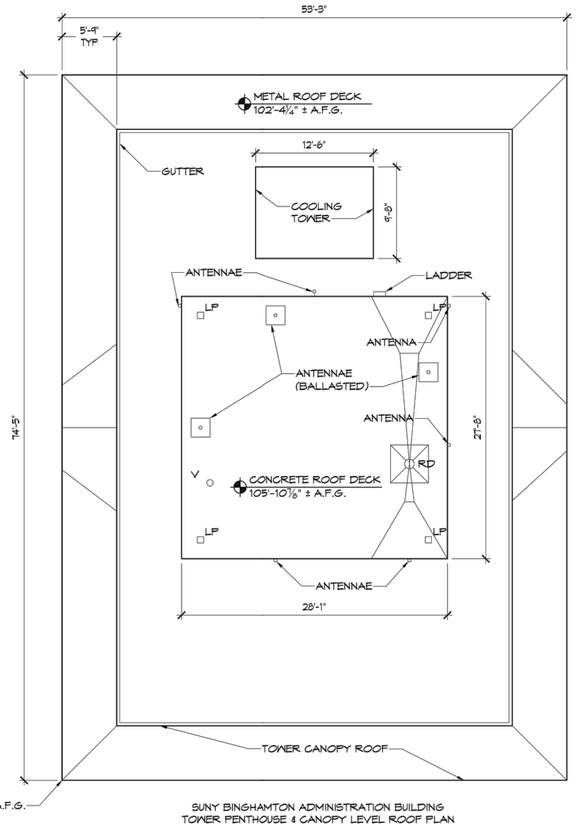
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SUNY BINGHAMTON ADMINISTRATION BUILDING
TOWER FAN ROOM LEVEL ROOF PLAN



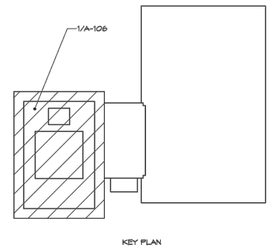
SUNY BINGHAMTON ADMINISTRATION BUILDING
TOWER PENTHOUSE & CANOPY LEVEL ROOF PLAN

NOTES:

1. A.F.G. = ABOVE FINISH GRADE @ SOUTH WEST CORNER OF TOWER.

1 ADMINISTRATION BUILDING - TOWER ROOF PLANS

SCALE: 1/8" = 1'-0"



KEY PLAN

A

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

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Building Science and EHS Solutions
828 Washington Avenue, Albany, NY 12203
PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

X XRF ROOM NUMBER

X BUILDING SIDE

REVISIONS		

PROJECT LOCATION

SUNY Binghamton
Administration Building
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

ADMINISTRATION BUILDING - TOWER LEAD BASED PAINT ROOM LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

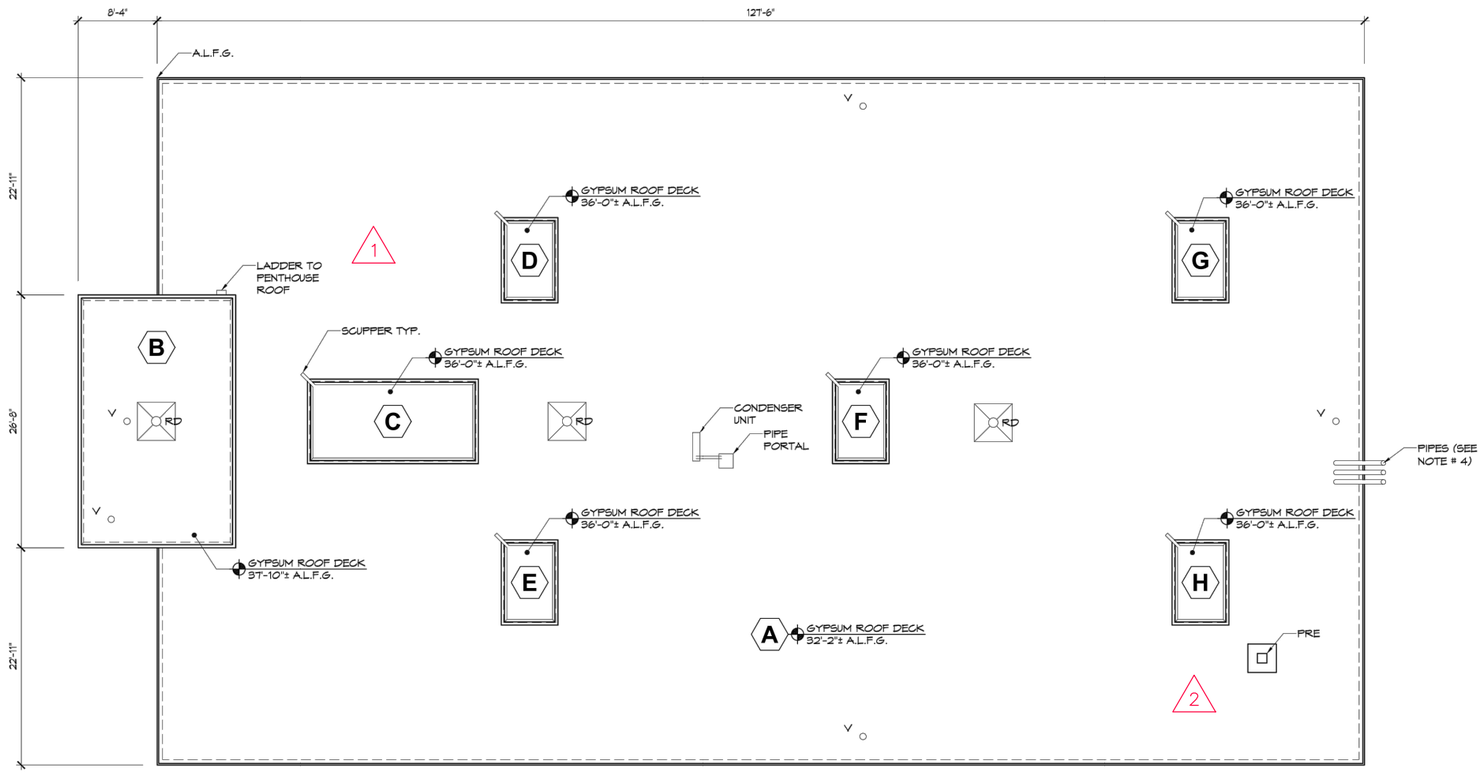
DWG. NO.

PB-106

C

B

D



SUNY BINGHAMTON HEALTH SERVICES BUILDING
ROOF PLAN

NOTES:

1. A.L.F.G. = ABOVE LOWEST FINISH GRADE @ NORTH EAST CORNER OF BUILDING.
2. THERE IS NO ROOF SCUTTLE OR OTHER BUILT-IN ACCESS TO ROOF.
3. STRUCTURAL DRAWINGS INDICATE THAT THE ROOF DECK IS NOT SLOPED TO DRAIN.
4. PIPES AT ROOF EDGE ARE ABOVE THE ROOF AND ARE NOT ROOF PENETRATING.

1 HEALTH SERVICES - ROOF PLAN
SCALE: 1/8" = 1'-0"

A

*PLEASE REFER TO THE ASSUMPTIONS AND LIMITATIONS SECTION OF REPORT

Ambient Environmental, Inc.
Building Science and EHS Solutions
828 Washington Avenue, Albany, NY 12203
PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

X XRF ROOM NUMBER

X BUILDING SIDE

REVISIONS		

PROJECT LOCATION

SUNY Binghamton
Health Services Building
4400 Vestal Parkway East
Binghamton, New York

DRAWING TITLE

HEALTH SERVICES LEAD BASED PAINT ROOM LOCATION PLAN

DATE: 10/28/2024	SCALE: NTS
PROJECT NO.	240807AC
DRAWN BY	KAJ
CHECKED BY	CDW

DWG. NO.

PB-107

ATTACHMENT E
PHOTOGRAPHIC DOCUMENTATION

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

PHOTO LOG

Ambient Project #240807AC
Hazmat Inspections SUNY Binghamton
Administration Building
November 7, 2024



Photograph 1 – 16-01 White Window Caulk at Tower Window Metal Panels

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

PHOTO LOG

Ambient Project #240807AC
Hazmat Inspections SUNY Binghamton
West Gym
November 7, 2024



Photograph 1 – 08-01 Built-up Vapor Barrier and 09-01 Silver coated Tar on Concrete Deck Roof G



Photograph 2 – 13-01 Tar on Flashing at Pilaster Pool and Gym



Photograph 3 – PCB-01 Brick Expansion Joint Caulk Gym

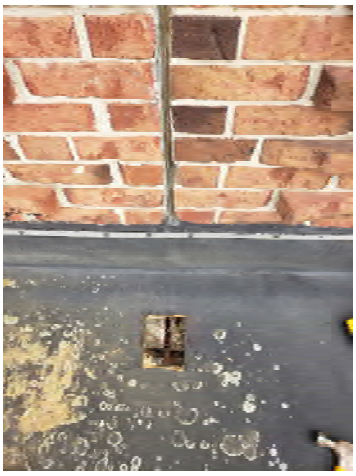
Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

PHOTO LOG

Ambient Project #240807AC
Hazmat Inspections SUNY Binghamton
West Gym
November 7, 2024



Photograph 4 – 19-01 and PCB-02 Tan Louver Caulk Gym North Wall above Canopy



Photograph 5 – 21-01 Black Term bar Caulk Gym North Wall at Canopy Roof



Photograph 6 – 26-01 Brown Caulk Lobby Windows at Top of Window Frame

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

PHOTO LOG

Ambient Project #240807AC
Hazmat Inspections SUNY Binghamton
West Gym
November 7, 2024



Photograph 7 – 31-01 Roof Drain Mudded Fitting

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

PHOTO LOG

Ambient Project #240807AC
Hazmat Inspections SUNY Binghamton
Health Services Building
November 7, 2024



Photograph 1 – PCB-3 Gray Penthouse Louver Caulk



Photograph 2 – PCB-4 Brown Penthouse Window Caulk

ATTACHMENT F

COMPANY, INSPECTOR AND LABORATORY ACCREDITATION AND LICENSES

WE ARE YOUR DOL

NEW YORK STATE | Department of Labor

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

ASBESTOS HANDLING LICENSE

Ambient Environmental, Inc.
828 Washington Avenue, Albany, NY, 12203

License Number: 29608
License Class: RESTRICTED
Date of Issue: 06/17/2024
Expiration Date: 07/31/2025
Duly Authorized Representative: Joella Viscusi

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

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



Amy Phillips, Director
For the Commissioner of Labor

NEW YORK STATE

MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISE ("MWBE")

CERTIFICATION

Empire State Development's Division of Minority and Women's Business Development grants a

Women Business Enterprise (WBE)

pursuant to New York State Executive Law, Article 15-A to:

Ambient Environmental, Inc.

Certification Awarded on: January 30, 2020
Expiration Date: January 30, 2025
File ID#: 50943

NEW YORK STATE OF OPPORTUNITY. Division of Minority and Women's Business Development

A Division of Empire State Development

Certification: View

Help & Tools

Certification List | Add Date Alert

This record is from **New York State Department of Transportation**. It is not managed by New York State.

Vendor Information

BUSINESS NAME	**Ambient Environmental, Inc.**
SYSTEM VENDOR NUMBER	**20167029**
PRIMARY OWNER'S NAME	**Ms. Joella Viscusi**
ETHNIC GROUP	**Other Minority**
GENDER	**Female**

Certification Information

CERTIFYING AGENCY	**New York State Department of Transportation**
CERTIFICATION TYPE	**DBE - Disadvantaged Business Enterprise**
EFFECTIVE DATE	**3/27/2013**
RENEWAL DATE	**3/27/2025**

Contact Information

MAIN COMPANY EMAIL	**joellav@ambient-env.com**
MAIN PHONE	**518-482-0704**
MAIN FAX	**518-482-0750**
MAIN COMPANY WEBSITE	**http://www.ambient-env.com**

Addresses

PHYSICAL ADDRESS	**828 Washington Ave.** **Albany, NY 12203-1622 [map]**
MAILING ADDRESS	**828 Washington Ave.** **Albany, NY 12203-1622 [map]**

Business Capabilities

BUSINESS CERTIFIED FOR	**Environmental Services.**	
FULL DESCRIPTION OF CAPABILITIES/PRODUCTS	**Environmental Services.**	
COMMODITY CODES	**NAICS 541620**	**Environmental consulting services** (More)
	NAICS 541690	**Safety consulting services** (More)

Owner Ethnicity and Gender

ETHNIC GROUP	**Other Minority**
GENDER	**Female**

Location

COUNTY	**Albany (NY)**

Certification List

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United States Environmental Protection Agency

This is to certify that

Ambient Environmental, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires May 12, 2026

LBP-16658-3

Certification #

December 12, 2022

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

Ambient Environmental, Inc.
Building Science and EHS Solutions
NYS Certified WBE,
SBA EDWOSB & DBE

AMBIENT ENVIRONMENTAL, INC.
NEW YORK STATE DEPARTMENT OF LABOR
ASBESTOS LICENSE

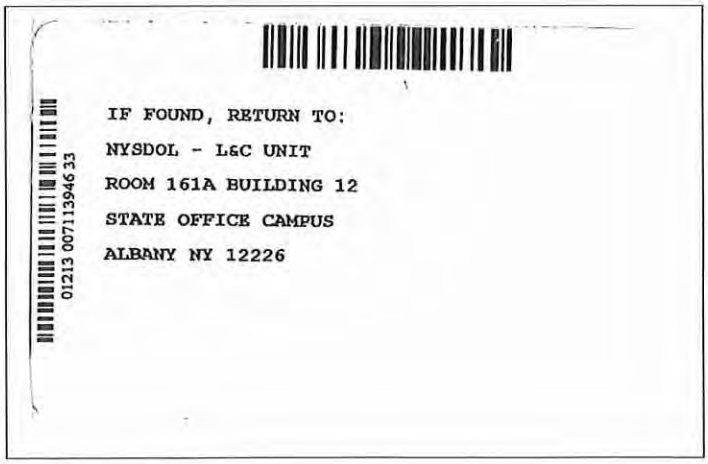
Kevin Jones

Cert No. 23-6LTTH-SHAB

Front of License



Back of License



Codes:

A- Asbestos Handler
B- Restricted Handler
C- Project Air Sampling Technician
D- Inspector – R III
E- Management Planner
F- Operations and Maintenance
G- Supervisor
H- Project Monitor
I- Project Designer
J- Allied Trades

United States Environmental Protection Agency

This is to certify that



Kevin A Jones

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires November 18, 2027

LBP-R-I230493-2

Certification #

November 04, 2024

Issued On

Ben Conetta, Manager

Chemicals and Multimedia Programs Branch

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2025
Issued April 01, 2024

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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

MS. KAROL H. LU
AMERICA SCIENCE TEAM NEW YORK, INC
117 EAST 30TH ST
NEW YORK, NY 10016

NY Lab Id No: 11480

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

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual
	EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual

Serial No.: 68795

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.