

**FASHION INSTITUTE OF TECHNOLOGY
HAFT THEATER ROOF REPLACEMENT
INVITATION FOR BID NUMBER C1668**

Table of Contents

SECTION I.	Notice to Bidders Attachment A – Bid Checklist Attachment B – Contractor Reference Sheet
SECTION II.	Bid Terms and Conditions
SECTION III.	Contract Terms and Conditions Attachment C – Bid Analysis Form
SECTION IV.	General Requirements
SECTION V.	General Conditions
SECTION VI.	Labor & Material Payment Bond
SECTION VII.	Performance Bond
SECTION VIII.	Form of Bid
SECTION IX.	Non-Collusive Bidding Certification
SECTION X	Substitution Form Request
SECTION XI.	Contract
SECTION XII.	Affirmative Action Form
SECTION XIII.	Change Order Form
SECTION XIV.	Contractor’s Trade Payment Breakdown
EXHIBIT A.	Safety EHS Plan
EXHIBIT B.	Prevailing Wage Schedule
EXHIBIT C.	Specifications
EXHIBIT D.	Drawings

SECTION I:
NOTICE TO BIDDERS

SECTION I: NOTICE TO BIDDERS

FASHION INSTITUTE OF TECHNOLOGY HAFT THEATER ROOF REPLACEMENT INVITATION FOR BID NUMBER C1668

For the purposes of this project (the “Project”) the Fashion Institute of Technology and its auxiliary dormitory organization, the F.I.T. Student Housing Corporation, shall hereinafter be collectively referred to as “FIT” unless otherwise distinguished herein. Neither the Fashion Institute of Technology nor F.I.T. Student Housing Corporation will be responsible for receipt of any Bid which does not comply with the instructions as set forth further in this document.

FIT is **ONLY** accepting electronic scanned bids for the subject project. You must email your bid to purchasingbids@fitnyc.edu in PDF format and it should include all the requested documents (See Attachment A – Bid Checklist) including a scanned image of your bid security (Certified Check of 2 percent or Bid Bond of 10 percent of your total bid price), we’ll also need you to mail us the original copy of the bid security to have on file. The bid security must either be mailed to 227 W 27th Street, New York, NY 10001 or dropped off at 333 7th Avenue (16th Floor), New York, NY 10001. Bids must be received by **Friday, March 28th, 2025, on or before 12:00 P.M.** All bidders will be notified of the bid results by the end of the bid due date. Bid results are not official until each package has been fully reviewed.

ATTACHMENT A - BID CHECKLIST

FASHION INSTITUTE OF TECHNOLOGY HAFT THEATER ROOF REPLACEMENT INVITATION FOR BID NUMBER C1668

Bidder shall meet the following requirements and submit necessary information with the Bid. Failure to comply with these requirements shall be grounds for rejection of your Bid. Include this Bid Checklist with your bid submission.

- ☐ Did you attend the **mandatory** site inspection?
- ☐ Did you include all required documentation? (As per Bidder Requirements – i.e. proof of being in business, permits, licenses, certifications, etc.)
- ☐ Did you include the Form of Bid? (See Section VIII.)
- ☐ Did you include the Non-Collusive Bidding Certification? (See Section IX.)
- ☐ Did you complete in full the Bid Analysis Form, (See Attachment C)
- ☐ Did you sign for each Addendum to this project, if any were published? (It is the contractor's responsibility to check FIT's "Current Bid Opportunities" webpage for addendums prior to submitting their bid.)
<https://www.fitnyc.edu/about/administration/finance/purchasing/current-bids.php>
- ☐ Did you complete the Contractor Reference Sheet? **Do not list FIT as your projects of similar size and scope.** (See Attachment B)
- ☐ Can you provide the required levels of insurance coverage? See: General Conditions – Article 15
- ☐ Did you include the Bid Security?
- ☐ Can the bidder provide references to at least three (3) different prior contracts that have been completed within the past five (5) years that are similar in size and scope to the project indicated for this Contract?
- ☐ All contractors must comply with New York State Labor Law Section 220-I and submit their NYS DOL Certificate of Contractor Registration with their bid. Did you include the certificate with your bid?
- ☐ Did you provide proof of years in business/date of incorporation?
- ☐ Sub-contracting percentage shall **not exceed 35%** of the project cost.
- ☐ Did you include an audited or reviewed financial report for the last two (2) years with your bid?

ATTACHMENT B - CONTRACTOR REFERENCE SHEET

**FASHION INSTITUTE OF TECHNOLOGY
HAFT THEATER ROOF REPLACEMENT
INVITATION FOR BID NUMBER C1668**

FIT requests a minimum of three references for **completed** projects of similar size and scope. Please complete the following information for each reference: **(Do not list FIT as your projects of similar size and scope.)**

Contact Name/Title: _____
Company Name/Address: _____
Phone Number: _____
Project Name: _____
Project Cost: _____
Project Start/End Date: _____
For FIT Use Only – Reference Responses
Quality of Work: _____ Site Maintenance: _____
Scheduling: _____ Cooperation: _____ Safety Standards: _____
Permits: _____ Report Submittals: _____ Payments: _____
Other Relevant Factors: _____
Overall Performance Rating: Excellent___ Satisfactory___ Marginal___ Unsatisfactory___

Contact Name/Title: _____
Company Name/Address: _____
Phone Number: _____
Project Name: _____
Project Cost: _____
Project Start/End Date: _____
For FIT Use Only – Reference Responses
Quality of Work: _____ Site Maintenance: _____
Scheduling: _____ Cooperation: _____ Safety Standards: _____
Permits: _____ Report Submittals: _____ Payments: _____
Other Relevant Factors: _____
Overall Performance Rating: Excellent___ Satisfactory___ Marginal___ Unsatisfactory___

Contact Name/Title: _____
Company Name/Address: _____
Phone Number: _____
Project Name: _____
Project Cost: _____
Project Start/End Date: _____
For FIT Use Only – Reference Responses
Quality of Work: _____ Site Maintenance: _____
Scheduling: _____ Cooperation: _____ Safety Standards: _____
Permits: _____ Report Submittals: _____ Payments: _____
Other Relevant Factors: _____
Overall Performance Rating: Excellent___ Satisfactory___ Marginal___ Unsatisfactory___

FIT

Interviewer: _____ Signature: _____ Date: _____

SECTION II:
BID TERMS AND CONDITIONS

SECTION II. BID TERMS AND CONDITIONS

SPECIFICATIONS FOR

FASHION INSTITUTE OF TECHNOLOGY HAFT THEATER ROOF REPLACEMENT INVITATION FOR BID NUMBER C1668

I. INTRODUCTION

The Fashion Institute of Technology, a community college of art and design, business and technology of the State University of New York, currently has an enrollment of approximately 10,000 full and part-time students. Located in the Chelsea area of Manhattan, FIT's facilities are composed of a twelve-building complex containing administrative/academic offices, classrooms, computer labs, and studios. There are three (3) residence halls located on West 27th Street that currently house approximately 1,250 students and one (1) residence hall located at 406 West 31st Street that houses approximately 1,100 students. F.I.T. Student Housing Corporation is a separate, not-for-profit corporation that was established pursuant to the laws of the State of New York to own and operate these residence halls for the benefit of the College and its students. For purposes of this project all references to FIT shall be recognized to refer to the Fashion Institute of Technology (hereafter, "FIT" or the "College") and the F.I.T. Student Housing Corporation together, unless specifically designated otherwise. The successful responsive and responsible bidder (hereinafter "Contractor") shall be required to enter into a contract with FIT based on the Contract Documents, (including Notice to Bidders, Bid Terms and Conditions, Contract Terms and Conditions, General Requirements, General Conditions, Labor & Material Payment Bond, Performance Bond, Form of Bid, Non-Collusive Bidding Certification, Substitution Form Request, Contract, Affirmative Action Form, Change Order, Form, Contractor's Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Specifications, and Drawings), attached hereto and incorporated herein.

II. SUMMARY OF SCOPE OF WORK

The Work of the Project is defined by the immediately following Project Description herein below and by the Contract Documents.

Project Description: Provide labor, materials, tests, tools and equipment to complete the roof replacement of the Haft Roof. Contractor may begin procurement of materials and survey of existing conditions following award. A detailed scope of work is outlined in specification Section 011000 "Summary of Work."

This work will require coordination with a separate job for "Haft Theater Interior Renovation, C1651R" and the work will happen concurrently with full cooperation by both contractors.

The installation of all equipment in accordance with the Manufacturer's Installation/Operation & Maintenance Manuals & Instructions shall be followed.

III. **BIDDER REQUIREMENTS**

Bidder shall meet the following requirements and submit necessary information with the Bid. Failure to comply with these requirements shall be grounds for rejection of your Bid. FIT reserves the right to reject bids with incomplete information or bid security, or contain conditions not specified in the Bid Terms and Condition herein, or which are presented on a different form other than that provided to bidders. FIT reserves the right to determine whether a Bidder has substantially met all the Bid requirements and to ask for additional information prior to making such a determination.

- A. **Bidder shall have been primarily a General Contractor in the roof renovation business for a minimum of five (5) years as of the Bid Opening Date. Proof shall be submitted with the Bid.**
- B. Bidder shall have satisfactorily performed work of the size, scope and nature to be performed under this Contract, as evidenced by **references from at least three (3) different successfully completed contracts in an installation similar to those indicated for this Contract in the past five (5) years.** Bidder shall include for each reference: project location, dollar value of contract; initiation and completion date, name, title, address and telephone number of contact person. References cannot be members of FIT staff or FIT consultants.
- C. **Bidder shall attend the mandatory pre-bid meeting and site inspection. Failure to comply with this requirement shall be grounds for rejection of the Bid.**
- D. Bidder is responsible for all necessary field measurements, all necessary data on the existing conditions and verification of all quantities and dimensions listed in the Project Specifications and Drawings, if applicable.
- E. By submitting a Bid, Bidder agrees that s/he has examined the Contract Documents, visited the site, noted all conditions and limitations affecting the Work, and fully understands the nature of the Work. Bidder is required to inform FIT in writing immediately of any instance where changed conditions are encountered.
- F. Bidder shall submit documentation of financial viability, including balance sheets and profit and loss statement for the prior two (2) years, with the Bid.
- G. Bidder, upon request, shall submit copies of current licenses and certifications applicable to the work, including, but not limited to, licenses issued by the Commissioner of Buildings of the City of New York. Proof of the following certificates will also be required: 10 Hour OSHA Outreach Training Program; Asbestos Awareness Training, FDNY Certificate of Fitness, with the Bid.

IV. **APPROVAL OF SUBCONTRACTORS**

Subcontracting shall be permitted **not to exceed 35%** of the work of the Project as determined by FIT. The ratio of the contractors and subcontractors work must be included with your bid submission. All subcontractors are required to gain prior written approval by FIT's Facilities Director. The General Contractor will be the Prime Contractor (hereinafter "Contractor") and shall not be permitted to Subcontract the following types of Services:

- N/A

The Contractor will require that the terms of this Contract apply to the sub-contractors and shall cause all sub-contractors to comply with the terms of this contract.

V. **BID SECURITY**

Failure to provide Bid Security in the prescribed manner shall result in the rejection of the Bid.

Bidder shall provide Bid Security in the form of either a bid deposit or a bid bond, at Bidders option. The bid deposit shall be in the form of a certified check made payable to "Fashion Institute of Technology" in an amount no less than two percent (2%) of the total bid price. The bid bond shall be in an amount no less than ten percent (10%) of the total bid price.

VI. **PRE-BID SITE INSPECTION AND QUESTIONS**

A **mandatory** Pre-Bid Site Inspection for prospective Bidders will be held on **Friday, March 14th, 2025 at 10:00 A.M.** at the Fashion Institute of Technology, Feldman "C Building" Lobby, located at 227 West 27th Street (between 7th and 8th Avenue). We highly encourage the Bidder to invite their sub-contractors as this will be the one and only site visit prior to awarding the project **Failure to attend shall be grounds for rejection of your Bid. Please also bring a business card.**

Note: Access to roof is through a ladder at the rear of the theater.

Bidder shall examine the Bid documents carefully. Before bidding, Bidder shall make any requests for interpretation of Bid documents or clarification of any ambiguity therein that should have been detected by a reasonably prudent Bidder. Questions shall be submitted in writing to the attention of Purchasing Department via email: purchasingbids@fitnyc.edu, no later than **Friday, March 21st, 2025 on or before 3:00 P.M.** Answers shall be provided in the form of an Addendum and be posted on the FIT purchasing department website. Reference Bid number **C1668**.

VII. BID DESIGNATION

- A. FIT is **ONLY** accepting electronic scanned bids for the subject project. You must email your bid to purchasingbids@fitnyc.edu in PDF format and it should include all the requested documents (See Attachment A – Bid Checklist) including a scanned image of your bid security (Certified Check of 2 percent or Bid Bond of 10 percent of your total bid price), we'll also need you to mail us the original copy of the bid security to have on file. The bid security must either be mailed to 227 W 27th Street, New York, NY 10001 or dropped off at 333 7th Avenue (16th Floor), New York, NY 10001. Bids must be received by **Friday, March 21st, 2025, on or before 12:00 P.M.** All bidders will be notified of the bid results within the hour. Bid results are not official until each package has been fully reviewed.
- B. Bids received late will not be considered.

VIII. PREPARATION OF THE BIDS

- A. Bids must be submitted on the forms supplied by FIT in the Bidder's full legal name or the Bidder's full legal name plus a registered assumed name. All blank spaces for bid prices must be filled in, using both words and figures, words to take precedence over figures. **Conditional bids shall not be accepted.** Bids shall not contain any recapitulation of the Work to be done. Bidder exclusions shall be grounds for bid rejection. Do not modify the bid forms supplied by FIT
- B. Bids that are illegible or that contain omission, alterations, additions or items not called for in the bidding documents may be rejected as not responsive. Any bid which modifies, limits, or restricts all or any part of such bid, other than as expressly provided for in the Notice to Bidders, Bid Terms and Conditions, and Contract Terms and Conditions, may be rejected as not responsive.
- C. FIT may reject any bid not prepared and submitted in accordance with the provisions of the Notice to Bidders, Bid Terms and Conditions, and Contract Terms and Conditions. Neither FIT nor the FIT Student Housing Corporation will be responsible for receipt of any Bid which does not comply with these instructions. Only those Bids emailed to the FIT Purchasing Dept. inbox (purchasingbids@fitnyc.edu) on or before **Friday, March 28th, 2025, on or before 12:00 P.M.** will be considered.
- D. Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof and any bid received after such time and date shall not be considered.
- E. No Bidder may withdraw a bid within ninety (90) days after the actual date of the opening thereof.

IX. AWARD OF CONTRACT

- A. The award of the Contract shall be made to the Bidder submitting the lowest responsible bid if, in the opinion of FIT, the bid is responsive to the bid solicitation,

and such Bidder is responsible and qualified to perform the work involved in the sole discretion of FIT. The lowest bidder will be considered the contractor with the lowest bid for the base bid. In case FIT will decide to include the 'alternate' in the scope of work, the lowest bidder will be considered the contractor with the lowest total of the base bid plus the alternate bid.

- B. FIT reserves the right to reject any bid or all bids, to waive any informalities or irregularities or omissions in any bid received.
- C. During the term of the Contract, the Contractor shall promptly notify FIT of any change in the ownership of the Contractor. Failure to notify FIT may result in termination of the Contract.
- D. FIT reserves the right, exercisable in its sole discretion, to cancel and withdraw from the Project at any time in advance of the award.
- E. Prior to the opening of the bids, Bidder shall promptly notify FIT of Change in ownership of the Bidder. Failure to notify with this bid shall be grounds for rejection of the Bid.

X. DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful Bidder, upon failure or refusal to execute and deliver the Contract and bond required within ten (10) days after such Bidder has received notice of the acceptance of such bid, shall forfeit to FIT as damages for such failure or refusal, the security deposited with the Bid or the sum of the difference between the total bid of the successful Bidder and the total bid of the Bidder submitting the next lowest bid, whichever sum shall be higher.

XI. PREVAILING WAGE

This contract is subject to New York State Labor Law 220, Article 8 Prevailing Wage Schedules. The Contractor shall submit with, each invoice, certified payrolls for all labor. Submission of a Certified Payroll with invoice in full compliance with labor laws is a condition of payment.

Contractor and its subcontractors shall pay at least the prevailing wage rate and pay or provided the prevailing supplements in accordance with the Labor Law.

A copy of the prevailing wage schedule, for New York County, can be found at the New York State Department of Labor website. (PRC# 2025000049)

www.labor.ny.gov

Bidder must also comply with all applicable federal, state, and local laws rules, regulations, requirements, and codes, including but not limited to, the statues regulations, laws, rules and requirements specifically referenced in the documents annexed hereto.

XII. M/WBE AND SDVOB

FIT encourages minority and women business enterprise participation in this project by contractors, subcontractors and suppliers, and all bidders are expected to cooperate with that commitment. Also, bidders are encouraged to use Service-Disabled Veteran-Owned Businesses (SDVOB). A directory of New York State Certified Minority and Women's Business Enterprises is available from: Empire State Development Corporation, Minority and Women's Business Development Division at: <http://www.esd.ny.gov/mwbe.html> to assist potential bidders in locating sources of M/WBE subcontractors and reaching these goals. SDVOBs can be readily identified on the directory of certified businesses at: <https://online.ogs.ny.gov/SDVOB/search>."

XIII. MISCELLANEOUS

- A. FIT reserves the right to request clarifications from bidders for purposes of assuring a full understanding of responsiveness and further reserves the right to permit revisions from all bidders who might be, in FIT's sole discretion determined to be viable bidders for contract award, prior to the award.
- B. FIT reserves the right to reject separable portions of any offer, to negotiate terms and conditions consistent with the bid, and to make an award for any or all remaining portions.
- C. FIT reserves the right to eliminate mandatory requirements unmet by all bidders.
- D. Any additional vendor terms which are attached or referenced with a submission shall not be considered part of the bid or proposal, but shall be deemed included for informational purposes only.
- E. Unless otherwise specifically stated in the Bid Terms and Conditions, all specifications and requirements constitute minimum requirements. All bids must meet or exceed stated specifications and requirements.
- F. FIT reserves the right to make an award to the responsive and responsible bidder whose product or service meets the terms, conditions, and specifications of the Bid and whose bid is considered to best serve FIT's interest. In determining the responsiveness and responsibility of the bidder, FIT may consider the following factors, including but not limited to: the ability, capacity, and skill of the bidder to perform as required; whether the bidder can perform promptly, or within the time specified without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the bidder; the quality of past performance by the bidder; the previous and existing compliance by the bidder with relevant laws and regulations; the sufficiency of the bidder's financial resources; the availability, quality, and adaptability of the bidder's equipment, supplies and/or services to the required use; and the ability of the bidder to provide future maintenance, service, and parts.

SECTION III:
CONTRACT TERMS AND CONDITIONS

SECTION III. CONTRACT TERMS AND CONDITIONS

I. COMPLIANCE REQUIREMENTS

All work hereunder, including but not limited to material and installations, shall be in compliance with the Contract Documents including both specifications and drawings, as well as all applicable state and local building codes (such as the New York City Building Code) and the rules, regulations of governmental agencies and utility companies having jurisdiction over the work.

The following additional notes shall be considered as part of the officially filed drawings:

N/A

THE WORK:

Unless modified by the Contract Documents, the work of each section of the specifications shall include all labor, materials, testing, tools and equipment necessary and reasonably incidental to **replace the Haft Theater roof and install photovoltaic panels and related infrastructure.**

WORKMANSHIP:

All work shall be performed by persons skilled in the work. Work shall be installed true to dimension, plumb and level with neat, accurate cutting and fitting of all materials in accordance with recognized standards of workmanship.

ON-SITE VERIFICATION:

The Contractor shall verify all dimensions and site conditions prior to commencing the work. Dimensions may not be scaled from drawings. Should there be a discrepancy, Contractor is to notify FIT Facilities Director and Architect immediately for clarification.

COORDINATION OF THE WORK:

The Contractor shall be responsible for the coordination of the work and the means and methods of construction and provide FIT with the resume of Contractor's project manager ("Project Manager"). FIT's Facilities Director shall approve the Project Manager and reserves the right to request a replacement Project Manager upon reasonable notice.

This work will require coordination with a separate job for "Haft Theater Interior Renovation, C1651R" and the work will happen concurrently with full cooperation by both contractors.

WORK HOURS:

Regular work hours are from **7:00 am to 6:00 pm** unless otherwise specified in the Contract Documents. Contractor will have reasonable access to the site in order to complete the work in the

given time frame. Contractor shall comply with FIT's additional work rules related to such extended access. All labor costs required to meet this deadline are the sole responsibility of the Contractor and shall be included in the contract price. FIT reserves the right to put the work on hold on three (3) occasions during the course of construction for any length of time and for any reason.

PERFORMANCE AND PAYMENT BONDS

In addition to the insurance and bond requirements specified in the General Conditions, Performance and Payment Bonds shall be required for the Work of this Contract.

- A. Concurrently with the delivery of the executed Contract, Contractor shall furnish to FIT and maintain, at its own cost and expense a Performance Bond in an amount at least equal to one hundred percent (100%) of the contract price as security for faithful performance of the Contract and also a Labor and Material Payment Bond in an amount at least equal to one hundred percent (100%) of the Contract price for the payment of all persons performing labor on the project under the contract or furnishing materials in connection with the Contract. The surety on such bonds shall be a surety company rated B+ or better by A.M. Best Company, shall be licensed to do business in the State of New York, and shall hold a certificate of authority as an acceptable surety on federal bonds or otherwise satisfactory to FIT.
- B. Attorneys-in-fact who sign said bonds on behalf of a surety must affix to each bond a certified and effectively dated copy of their power of appointment.

CONFLICTS, ERRORS AND OMISSIONS:

- 1. The Contract Documents and typical details apply throughout the work unless noted otherwise.
- 2. In the event that certain features of the work are not fully shown on the drawings, Contractor must obtain clarification from the FIT Facilities Director and Architect through the use of an AIA Standard RFI form (copies can be obtained from the Architect) before proceeding with the work.
- 3. In the event of conflicts with the drawings and/or specifications, the Contractor must promptly notify the FIT Facilities Director and Architect. The Architect will determine which shall govern.

MANUFACTURER'S PRODUCTS AND FABRICATIONS:

- 1. All manufacturers and fabricators printed warnings for handling of their products must be strictly observed.
- 2. All products and materials must be provided and installed in strict accordance with the requirements and recommendations of the manufacturer. In the event of conflict between the drawings or the specifications and the manufacturer's requirements and recommendations, Contractor must notify FIT Facilities Director and Architect to obtain clarification before proceeding with the work.

3. Contractor must verify all materials and manufactured items to be in conformance with applicable codes and regulations.

DELIVERY AND STORAGE OF MATERIALS:

1. All materials shall be new and delivered to the site in original, unbroken containers.
2. All materials shall be inspected by the Contractor at time of delivery and Contractor shall reject material evidencing damage or other defects.
3. Contractor shall provide secure and environmentally compatible storage facilities for all materials in accordance with the recommendations of the manufacturer.

PROJECT SCHEDULE:

1. Contractor shall attend a Project Initiation Conference, prior to the commencement of work at the site. Attending this Conference on behalf of the Contractor shall be an officer of the Contractor and the Project Manager assigned to the project. Contractor shall submit at this Conference a detailed timeline indicating the important milestones of the project and establishing an estimated date of substantial completion in accordance with Contract Documents. He/she shall also present all submittals required by the Contract Documents, such as Insurance Certificates, product tear sheets (not at the initial conference), copy of the General Liability insurance policy (amended to reflect required additional insureds), etc. Project access, storage locations, required crew size and other relevant issues shall also be addressed at this Conference.
2. Time is of the essence. Contractor shall be required to commence work of the **Haft Roof Replacement** project within five (5) working days of receipt of a Notice to Proceed from FIT. The shop drawings process and ordering need to proceed first. Work on site considered in FIT's sole opinion to be non-disruptive may commence no earlier than **Tuesday, July 2nd, 2025**. The Work shall require a construction shed and the construction shed shall be ready no later than **Friday, July 11th, 2025**. All other work on site may begin no sooner than **Monday, July 14th, 2025**. Contractor must be de-mobilized and leave the job site on **Friday, October 10th, 2025**. Only close-out and administrative tasks may continue beyond the closing date. Unless otherwise specified, the work is to be performed solely between the hours of **7:00 A.M. to 6:00 P.M.** Monday through Friday, legal and union holidays excluded. All labor costs encountered to meet this deadline are the sole responsibility of the Contractor and shall be included in the Bid Price. FIT reserves the right, at no financial liability associated with the same, to put the Project work on hold on as many as three (3) separate occasions during the course of the Project for any length of time and for any reason.
3. On Monday of each week during the construction period, the Contractor shall email to FIT's Facility Director (or such other individual as FIT may designate at its sole discretion) a written report outlining the work completed during the preceding week and the work planned for the upcoming week. Included will be any unforeseen or anticipated problems regarding implementation of the work, in addition to Change Order requests,

submission data, etc. Daily reports **MUST** be submitted to the CM and or the Facilities Department Designee.

4. Job meetings will be held at the site on dates to be determined by Architect and FIT. These meetings shall be attended by an officer of the Contractor, the Project Manager, FIT's representative, and the Architect. The purpose of these meetings will be to review the status of the project, discuss any potential changes to the project scope, and resolve any problems relating to successful completion of the work.
5. Owner's meetings will be held weekly via zoom and in person when needed. The dates to be determined by the Architect and FIT. These meetings shall be attended by the Contractors Project Manager, FIT, and the Architect. The purpose of these meetings is to keep the Owners informed of the process and to discuss any issues relating to the successful completion of the work.
6. **Project Schedule and Milestone Completion Dates:**
 - Friday, March 14th, 2025: Pre-Bid Site Inspection
 - Friday, March 21st, 2025: GC Bid Questions due
 - Friday, March 28th, 2025: GC Bid Designation due
 - Friday, April 11th, 2025: FIT to award contract to GC
 - Tuesday, June 2nd, 2025: GC may begin installation of sidewalk shed
 - Tuesday, July 1st, 2025: GC may begin non-disruptive work on site
 - Friday, July 11th, 2025: GC completes installation & DOB approval of sidewalk shed
 - Monday, July 14th, 2025: GC may begin demolition and all other disruptive work on site
 - Friday, September 26th, 2025: Substantial Completion
 - Friday, October 10th, 2025: Final Completion & demobilization

PAYMENT:

In accordance with, and in addition to, the payment requirements of the Contract Documents, the Contractor shall provide sufficient and appropriate documentation for all invoices to FIT including submittal of invoices for actual cost of materials, labor rates, and certified payrolls. Filing of such payrolls shall comply with the New York State Labor Law and is a condition precedent to payment. FIT reserves the right to request additional information and/or documentation at any time.

Contractor is required to submit Monthly Contractor's Compliance Form (as attached in Section XII. Affirmative Action Form) with each Payment Requisition.

Contractor is required to submit a Certificate of Monthly Payment/Lien Waiver signed by each Sub-contractor with each Payment Requisition.

Contractor is required to submit Waste Management Form with each Payment Requisition.

LABOR HARMONY:

- A. Contractor is advised that he/she must maintain labor harmony throughout the duration of the Contract. All labor disputes, slowdowns, strikes and/or sympathy actions will be the sole responsibility of the Contractor to resolve in order to maintain harmony.
- B. All costs, delays and scheduling impacts associated with any labor dispute that arises from such action or inaction will be borne by the Contractor.
- C. Contractor will also be responsible for all costs, damages and scheduling impacts which affect and disrupt any other workers on site as well as FIT employees.
- D. It will be the Contractor's responsibility to resolve all labor disputes immediately.

Contractor is further advised that FIT has a large union presence on the campus. All work performed by the Contractor must provide the required labor harmony to perform work without labor incident or dispute which can delay, obstruct or effect the work and project schedule, or interfere with FIT's ability to operate.

II. GENERAL NOTES

In accordance with, and in addition to, the requirements of the Contract Documents:

- 1. All work listed on the construction notes and shown or implied on all drawings shall be supplied and installed by the Contractor unless otherwise noted on drawings and/or in specifications.
- 2. Contractor to determine coordination of trades.
- 3. Contractor shall verify all dimensions and conditions shown on drawings and shall notify FIT Facilities Director and Architect of any discrepancies, omissions, and/or conflicts before proceeding with the work.
- 4. Contractor must comply with the rules and regulations of agencies having jurisdiction and shall conform to all construction and safety codes, statutes and ordinances. All fees, taxes, permits and applications to be obtained through governmental agencies shall be the responsibility of the Contractor.
- 5. Contractor shall comply with the rules and regulations of the building as to hours of availability of loading docks and elevators for the purposes of delivery, waste removal and other needs related to the work. Coordination with FIT Facilities Department is required for the handling materials, movement in and out of building, equipment and debris to avoid conflict and interference with normal building operations.
- 6. All drawings and construction notes are complementary and what is called for by any will be binding as if called for by all.

7. Contractor shall maintain a current and complete set of construction documents on the construction site during all phases of construction.
8. Do not scale drawings; dimensions shown govern. Larger scale drawings shall govern over smaller scale.
9. Contractor shall maintain a current and complete set of shop drawings on the construction site.
10. Contractor shall maintain a current and complete RFI (Request for Information) log on the construction site.
11. Contractor shall submit for approval, prior to commencing work, a list of all sub-contractors to FIT's Facilities Director, with the name, address and phone number of the principal contact of each sub-contractor. In addition, he will file with the owner the emergency numbers available for 24-hour contact.
12. All work shall be performed by skilled and qualified workmen in accordance with the best practices of the trades involved and in compliance with building regulations and/or governmental laws, statutes, or ordinances.
13. All materials shall be new, unused and of professional quality, unless otherwise noted, installed as per manufacturer's recommendations and instructions.
14. For purposes of the Specifications and Drawings sections in the Contract, the use of the words "Supplied By" or "Provided" in connection with any item specified is intended to mean that such item shall be furnished, installed and connected where so required.
15. All approvals of submittals shall be for design intent only. Contractor shall be responsible for quantities, dimensions and compliance with Contract Documents and for information pertaining to fabrication processes or techniques of first-class construction and for coordination with other trades.
16. All work shall be erected and installed plumb, level, square, true and in proper alignment.
17. Contractor shall be responsible for cutting, patching and restoration required for this work.
18. If, during the course of construction, Contractor believes materials that might contain asbestos may be disturbed during performance of the work, Contractor shall immediately notify FIT of the area(s) of concern, and stop work if that area would be disturbed by the continuing work.
19. All correspondence to FIT shall be directed to the attention of the FIT Facilities Director with a copy of the same forwarded to the Architect.
20. Contractor shall at all times keep the premises free of accumulation of waste materials and rubbish; premises to be broom swept clean daily. At the completion of the work,

Contractor shall leave the job site free of construction debris and materials, and “broom clean” including thorough cleaning of toilets, bathrooms, electrical closets, stairwells, and all areas of work or staging, etc.

21. Contractor shall provide all necessary protection against dirt and damage within the premises, as well as public areas, and shall be responsible for keeping these areas clean and free of materials at all times.
22. Contractor shall verify location of existing utilities and coordinate with location shown on drawings.
23. During construction, security and fire exit doors must remain unobstructed at all times.
24. Contractor shall take every precaution to properly protect all existing construction to remain. Contractor shall be responsible for all damaged areas to be returned to original condition.
25. Contractor shall schedule construction in such a manner so as not to disturb areas outside of the area under construction during normal operating hours. The Contractor shall coordinate with FIT Facilities Director minimum of 24 hours prior to any disruption of services to those areas not under construction even if such a disruption occurs during or after normal operating hours.
26. Contractor shall staff the project with a Project Manager with at least 5 years’ experience in this type of project scope, with similar complexity and schedule requirements.
27. The acceptance of shop drawings containing deviations not specifically brought to the attention of FIT, or containing errors or omissions of any sort, shall not relieve Contractor of the responsibility for executing the Work in accordance with the Contract Documents and Contract Terms and Condition.

III. DEMOLITION NOTES

In accordance with, and in addition to, the requirements of the Contract Documents. It shall be Contractor’s responsibility to perform the following:

1. Prior to commencement of selective removals and demolition work, inspect the areas in which the work will be performed.
2. Any asbestos contaminated material will be removed by FIT’s certified asbestos abatement contractor prior to the work of this contract. The Haft Theater will be offline on July 1st, 2025 and FIT will have their on-call contractor abate the ACM material at the “Connector Roof” between Haft and Pomerantz. This work is scheduled from July 1st to July 11th. The GC and FIT’s on-call abatement contractor shall coordinate the time and duration of the ACM demolition.

3. Provide temporary barricades and other forms of protection required to protect all FIT personnel, inclusive of its faculty, staff and students as well as the general public from injury due to selective removals and demolition work.
4. Remove and dispose of exposed bolts, supports, brackets, cleats, grounds, and other items, that are no longer required for the purpose for which they were originally installed.
5. Where existing work is required to be removed and replaced but found to be defective in any way, it shall be reported to the FIT Facilities Director and Architect before it is disturbed.
6. All existing work damaged or lost as a result of performing the required new work, shall be patched, repaired or replaced with new, and finished to match the existing work, or as the individual case requires at the Contractor's expense.
7. Perform cutting, drilling and removals in a manner which will prevent damage to construction which is to remain.
8. Promptly repair any and all damages to all property and finishes caused by the removals and demolition work; to FIT's satisfaction and at no extra cost to FIT.
9. Cut, patch, paint and finish existing walls, ceiling and/or floor disturbed to match existing.
10. Perform patching around items penetrating existing construction in a manner that will maintain the water and fire resistive capability of existing construction. Should either of these be compromised, it is the responsibility of the Contractor to repair prior to completion.
11. Remove debris, rubbish and other materials resulting from the removals and demolitions from the building immediately; transport and legally dispose of materials off-site. Disposal method shall be in accordance with city, state and federal statutes regulations, and ordinances.
12. Work of this section shall conform to all requirements of the New York City Building Code and all applicable regulations and guidelines of all governmental authorities having jurisdiction, including, but not limited to, Safety, Health and Anti-Pollution regulations.
13. Work is to conform to OSHA requirements.

IV. ADDITIONAL CONTRACTOR'S RESPONSIBILITIES

In accordance with, and in addition to, the requirements of the Contract Documents:

1. Contractor shall coordinate all work with FIT Facilities Department and Director.
2. Contractor to provide daily crew manpower log/count to FIT.

3. Contractor shall perform work in a neat workmanlike manner in accordance with accepted industry standards.
4. FIT Facilities Department shall notify Contractor before commencing work which floors are accessible by Contractor.
5. Contractor shall mask all signs, window frames, door frames, etc. when painting around them.
6. Employee Identification and Building Access: All Managers and their crew must wear at all times company identification. All Managers and their crew must sign in and out, upon entering and leaving the facility, at the FIT front security desk.
7. After Bid opening, FIT will evaluate and review submissions and notify the lowest Bidder, who is deemed most responsive and responsible. Within five (5) business days of such written notification, such Bidder shall submit the following information. Failure to comply with these requirements in whole or part shall constitute grounds for rejection of the Bid. FIT reserves the right to determine whether a Bidder has substantially met these requirements and to ask for additional information. Documentation of the following:
 - a. Health and safety training program and procedures for employees and on-site EHS Coordinator.
 - b. Copies of current licenses and certifications applicable to the Work, including but not limited to licenses issued by the Fire Department of New York, Department of Buildings of the City of New York, must be provided to FIT Facilities.
8. Contractor shall complete the attached Outline for Preparing Work-Specific Environment, Health and Safety Plan (“EHS Plan”) which will be reviewed and approved by FIT’s EHS Compliance Director prior to commencement of work. Contractor shall include the costs of completing the EHS Plan in the Bid price. Proof of the 10 Hour OSHA Outreach Training Program for Construction certificate will be required.
9. Contractor shall provide as described in the FIT Safety EHS Plan, legible copies of SDS sheets and estimates of anticipated amounts of chemicals Contractor intends to store on site to the FIT’s Director of EHS Compliance for review and approval at least ten (10) days before Contractor allows on-site storage.
10. Contractor shall ensure that legible copies of all SDS are available at the location of chemical storage and available for review at all times. Contractor shall take all necessary precautions necessary to prevent vapors, fumes, or dust from leaving the work area. This includes but is not limited to the construction of negatively ventilated containments as controls.

11. Contractor shall provide as described in the FIT Safety EHS Plan a written statement of the types of project waste disposed, including the amounts and the name of the waste disposal facility for each type of waste disposed. Contractor shall provide the statement with each Payment Application. Contractor shall provide a separate copy of the statement to FIT's Director of EHS Compliance.
12. Contractor may not store Hazardous Waste on site at any time. Contractor may not generate or accumulate Hazardous Waste on site without the written approval of FIT's Director of EHS Compliance. Contractor shall obtain FIT's Director of EHS Compliance approval at least ten (10) days before the Contractor generates or accumulates Hazardous Waste on site beginning with demolition work.
13. Off-site shipments of Universal or Hazardous Waste. The Contractor may not allow the off-site removal of Universal or Hazardous Waste without the written approval of the FIT Director of EHS Compliance. Contractor will ensure that the FIT Director of EHS Compliance alone signs any shipping papers for the off-site removal of Universal or Hazardous Waste.
14. Contractor's personnel must report daily to the FIT Security area in the Lobby of Building "C", the Feldman Center before entering FIT's site. All Contractor's personnel must obtain temporary FIT identification that shall be displayed at all times while on the FIT site. While on FIT property, all Contractor's personnel shall be subject to all FIT campus policies and procedures, including, but not limited to, prohibitions related to tobacco, drug, and alcohol use, and policies and procedures regarding appropriate and civil conduct. Contractor's personnel shall not fraternize with FIT students and employees beyond what is necessary to complete their work or any assigned Projects. FIT policies may be found at <https://www.fitnyc.edu/policies/>. FIT reserves the right, in its sole determination, to eject from the campus, any Contractor personnel violating such policies, in addition to any other rights and remedies.

V. PERMITS

Contractor shall be responsible for obtaining all required Permits and paying all costs and fees associated therewith. New York City Department of Buildings (DOB) Work Permit will be required for this project. Contractor will also be required to perform the following functions as it relates to this project:

- A. Contractor shall submit to FIT and Architect appropriate Workman's Compensation and New York State Disability insurance certificates for use in securing the required Work Permits to be posted at the site. The Contractor shall provide FIT's Facility Director with the appropriate insurance tracking numbers assigned to their firm by the NYC Department of Buildings.

- B. The Contractor shall submit to FIT and Architect a copy of all Licenses as issued by the NYC Department of Buildings.
- C. Permits for the work shall be posted by the Contractor in a conspicuous location at the site at all times. No work shall begin until the necessary DOB work permits have been obtained by the Contractor.
- D. The Contractor shall be responsible for obtaining any other governmental permits and approvals required to undertake the work, and shall pay any and all fees associated therewith, including but not limited to fees to the MTA for setting up a crane, if applicable.

VI. PROJECT MANAGER

- 1. The Contractor shall provide the services of an experienced Project Manager, who shall be in continual responsible charge of the work and shall have a valid Certificate of Fitness by the New York City Department of Buildings.
- 2. The Project Manager shall be on site at all times, shall speak fluent English, shall maintain on the site a complete set of these specifications (including any addenda and/or change orders, as well as all project drawings and all applicable manufacturers' instruction sheets), and shall have full authorization to make all field changes as directed by FIT's Facility Director and Architect.
- 3. The Project Manager shall be required to maintain a daily log at the site indicating the following:
 - the date
 - the number of workers at the site on said date
 - the specific portions and locations of the Work completed on said date
- 4. The Project Manager (or another authorized representative of the Contractor) shall telephone FIT's Facility Director at least once daily throughout the construction period, to report on the day's activities and the work planned for the following day.
- 5. The name of the Project Manager shall be submitted to FIT's Facility Director prior to initiation of the project. This Manager shall remain in charge of the project for its entire length, at FIT's discretion, unless said Manager no longer remains in the employ of the Contractor. In such case, a capable and experienced replacement shall be immediately assigned subject to approval by FIT's Facilities Director.

6. No telephone service is available at the site for use by the Contractor; therefore, the Contractor shall equip the Project Manager with a cellular telephone at the site for the duration of the Project. The Contractor shall provide FIT and Architect with the appropriate contact numbers at the initiation of the Project.

VII. SUBMISSIONS AND SUBSTITUTIONS

1. All submissions called for in the Contract Documents shall be submitted at least twenty (20) working days prior to proposed initiation of any related work.
2. FIT and FIT's Architect and Engineer will review and accept or take other appropriate action regarding Contractor submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. FIT's review of all shop drawings submitted by the Contractor shall be for concept only and does not remove the Contractor's responsibility for insuring that all specific details of the installation shall be performed in such a way so as to achieve satisfactory results. Acceptance by FIT and the Architect of Contractor submittals does not relieve the Contractor from responsibility for errors which may exist in the submitted data.
3. Where the phrase "or approved equal" or "equal as approved by FIT" occurs in the Contract Documents, the Contractor may not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically approved by FIT and the Architect.
4. Any proposed substitute products or procedures are to be submitted to FIT's assigned Architect/Engineer for prior approval with any proposed price adjustments to the contract within 14 days of the signing of the agreement between FIT and the Contractor, so that FIT and the Architect are permitted adequate time for review.

VIII. PROGRESS PAYMENTS

1. All submissions called for in the Contract Documents shall be submitted at least twenty (20) working days prior to proposed initiation of any related work.
2. Progress payments will be made to the Contractor based solely on actual work completed. Furthermore, payment will not be made for the purchase of materials, nor for their transfer onto the site, nor for any costs associated with mobilization.
3. Payment requests shall be submitted to FIT's Facilities Director on AIA Documents G702 and G703.

4. Payments will be authorized based upon FIT's field visits and review of work. All FIT's decisions regarding progress payments shall be final.
5. The values quoted on the bid form shall constitute the Schedule of Values for AIA Document G703. Additional breakdown of the bid form shall be provided on the Schedule of Values and will be used for progress payments.
6. No progress payments will be processed without submission by the Contractor of properly executed Affidavit of Payment and Release of Liens (AIA Documents G706 and G706A or equivalent forms as may be requested by FIT), up-to-date weekly written reports and timeline in bar chart form, and all submittals, certificates, permits, etc. required pursuant to the terms of the contract.
7. A 10% retainage shall be deducted from all progress payments made by FIT.
8. Payment requests shall be submitted to FIT not more than once per month.
9. Contractor shall provide sufficient and appropriate documentation for all invoices to FIT including submittal of invoices for actual cost of materials, labor rates and certified payrolls. Filing of such payrolls shall comply with the Labor Law and is a condition precedent to payment. FIT reserves the right to request additional information at any time. Contractor required to submit Monthly Contractor's Compliance Form with each Payment Requisition.
10. Contractor required to submit a Certificate of Monthly Payment signed by each Sub- contractor with each Payment Requisition.
11. Contractor shall be required to submit a detailed Trade Payment Breakdown.

IX. SITE VISITS BY ARCHITECT/ENGINEER

1. Failure by Architect/Engineer to detect and/or notify the Contractor of any aspect of the Contractor's actions or materials that are not in conformance with the Contract Documents shall not remove the Contractor's responsibility to adhere to the Contract Documents in all instances, including but not limited to the Contractor's responsibility to expeditiously correct and/or replace all defective work.
2. Architect/Engineer will be the final judge as to whether the work is satisfactorily performed, and shall have the authority to order that any work deemed unacceptable or not in conformance with the Contract Documents be redone by the Contractor at no cost to FIT.
3. Architect/Engineer shall have no responsibility for the presence, discovery,

identification, handling, removal or disposal of, or exposure of persons to hazardous materials in any form at the Project site.

X. CHANGE ORDERS

1. FIT may order changes in the work of any quantity and without invalidating the Agreement so long as the Contract Sum and/or Contract Time of Completion are adjusted accordingly. All such changes in the work shall be authorized by written Change Order. All Change Orders shall be reviewed by Architect and authorized by a representative of FIT.
2. No work shall be performed by the Contractor unless it is specifically included in the Contract Scope of Work or authorized in advance by a bulletin issued by the Architect which will serve as the backup paperwork for a change order. The contractor needs to submit a Change Order. All work to proceed prior to approval of change orders. Change Orders will be negotiated fairly in separate meetings. All written Change Orders are to be signed by all parties.
3. Any sums to be paid to Contractor as a result of any Change Order or any sums to be credited to FIT as a result of any Change Order shall be computed by one of the following methods:
 - (1) As agreed upon between the parties to the contract in writing prior to commencement of the work required by the Change Order, or;
 - (2) By Unit Prices detailed in the Contract Documents or subsequently agreed upon.

XI. GUARANTEES

1. All work on this project shall be guaranteed by the Contractor for a period of not less than five (5) years, or longer where covered by manufacturer warranty. Warranty to start on the day of the final signoff by FIT.
2. If within the guarantee period any of the work is found to be defective or not in conformance with the Contract Documents, the Contractor shall correct it promptly at his own expense after receipt of written notice from FIT.

XII. FINAL PAYMENT

1. Final payment (retainage) shall be released to the Contractor thirty (30) days after the project has been signed off by FIT and Architect/Engineer and the Contractor has satisfied all requirements of the Contract Documents.

2. In addition to any other requirements of the Contract Documents final payment shall not become due until the Contractor has delivered to FIT and Architect a fully executed 5-year guarantee for all work performed under this project, as well as a complete release of all liens arising out of this Contract, or receipts in full covering all labor, materials, equipment, applicable finance charges, and fines for which a lien could be filed. If such lien remains unsatisfied after payments are made, the Contractor shall refund to FIT all money that FIT may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
3. A Performance Bond and a Labor & Material Payment Bond, a copy of the "Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706)" and "Consent of Surety to Final Payment (AIA Document G707)" shall be submitted by the Contractor prior to the release of final payment.
4. One (1) set each of record drawings (measuring 24 inches by 36 inches) indicating the "As- Built" manner of installation of all work, shall be submitted to FIT prior to the release of final payment.
5. Once the project has reached substantial completion, FIT and Architect will prepare a "Certificate of Substantial Completion". This certificate must be signed by all parties (Engineer, FIT and Contractor), to acknowledge the date the project has reached substantial completion, and confirm agreement on a final punch-list of work to be performed. The Contractor shall be responsible for completing all punch-list items prior to release of final payment.

XIII. SUPPLEMENTAL CONDITIONS

Project Schedule. Contractor shall complete all work as specified within the time period specified in the Contract Documents, inclusive of rain days, but excluding any shutdowns authorized by FIT.

XIV. PREVENTIVE MAINTENANCE SCHEDULE

Prior to final payment, the contractor shall provide a recommended maintenance schedule from the manufacturer for quarterly, semi-annual and yearly requirements, including part numbers where applicable, upon completion of the job.

BID ANALYSIS FORM FOLLOWS

ATTACHMENT C – BID ANALYSIS FORM

**FASHION INSTITUTE OF TECHNOLOGY
HAFT THEATER ROOF REPLACEMENT
INVITATION FOR BID NUMBER C1668
NYS PREVAILING WAGE SCHEDULE PRC # 2025000049**

BID BREAKDOWN

Line	Description	Total Labor Cost	Total Materials, Tools & Equipment	Line Total
1	SELECTIVE DEMOLITION	\$	\$	\$
2	MASONRY	\$	\$	\$
3	ROOFING ASSEMBLIES	\$	\$	\$
4	METAL COPING/FASCIA ASSEMBLY	\$	\$	\$
5	MISCELLANEOUS METALS	\$	\$	\$
6	OPENINGS / ROOF HATCH	\$	\$	\$
7	PAINTING	\$	\$	\$
8	LOW VOLTAGE	\$	\$	\$
9	MECHANICAL	\$	\$	\$
10	PLUMBING	\$	\$	\$
11	ELECTRIC	\$	\$	\$
12	GENERAL REQUIREMENTS	\$	\$	\$
13	GENERAL CONDITIONS	\$	\$	\$

TOTAL BID PRICE (1-13)

\$ _____

As stated in Section IV of the front end documents: Subcontracting shall be permitted **not to exceed 35%** of the work of the project. Please provide the ratio of the contractors and subcontractors work that will be used on this project.

Contractor _____%, Subcontractor(s) _____%

For Bidding Purposes: the following sections pricing should cover the following items:

General Requirements: permits & licenses; project meetings; administrative overhead for submissions and shop drawings; progress photos; temporary facilities & controls; storage & protection of materials; project closeout; and project record documents.

General Conditions: supervision of work; all testing; coordination drawings; safety programs; insurance and performance & payment bonds.

The undersigned, having carefully examined all Contract Documents, including Notice to Bidders, Bid Terms and Conditions, Contract Terms and Conditions, General Requirements, General Conditions, Labor & Material Payment Bond, Performance Bond, Form of Bid, Non-Collusive Bidding Certification, Substitution Form Request, Contract, Affirmative Action Form, Change Order, Form, Contractor's Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Specifications, and Drawings and having examined the existing conditions by on-site visit(s), hereby submits this Bid Analysis, covering all labor, materials, equipment, tools, machinery, licensing, insurance, taxes, and fees required to perform the specified work at the above-referenced site, in accordance with the Contract Documents. **No exclusions & no exceptions.**

Company Name and Address of Bidder:

Signature of Bidder _____ Date _____

Printed Name and Title of Representative: _____

Email Address: _____

Telephone: _____

EIN#: _____

IMPORTANT:

This bid analysis form is the **only** pricing format acceptable. Bidders **must** submit pricing using this form. **FIT will not accept bid responses on any other form.**

NOTE:

FIT will not sign any bidder generated contract, agreement or scope of work. FIT Bid and Terms and Conditions apply. Bidder requirement for FIT to sign any document will be grounds for rejection. Bidder inclusion of any conditions, clarifications, exceptions or changes which are not in compliance with FIT Bid and Terms and Conditions will be grounds for rejection.

SECTION IV.
GENERAL REQUIREMENTS

TABLE OF CONTENTS INDEX

01010 -- SUMMARY OF THE WORK	1
.01 - WORK UNDER THE CONTRACT	1
.02 - WORK BY OTHERS	1
.03 - ITEMS NOT INCLUDED	1
.04 - OPENINGS AND CHASES	1
.05 - SURVEYS AND LAYOUT	2
.06 - SCHEDULING	2
.07 - CONTRACTOR USE OF PREMISES	2
01080 -- PERMITS AND COMPLIANCE	2
.01 - PERMITS AND LICENSES	2
.02 - COMPLIANCE	2
.03 - ADDITIONAL COMPLIANCE	3
.04 - ROYALTIES AND PATENTS	3
01200 -- PROJECT MEETINGS	3
.01 - PROJECT MEETINGS	3
.02 - INITIAL JOB MEETING (ORIENTATION MEETING)	3
.03 - JOB PROGRESS MEETINGS	3
01300 -- SUBMITTALS	4
.01 - SCHEDULES & RECORDS	4
01311 -- PROJECT ANALYSIS	4
.01 - PROJECT CONTROL AND PROGRESS MEETINGS	5
.02 - PAYMENT	5
.03 - TIME OF COMPLETION	5
01340 -- SHOP DRAWINGS AND SAMPLES	6
.01 - CONTRACTOR SUBMITTAL	6
.02 - CONTRACTOR REVIEW	7
.03 - CONTRACTOR RESPONSIBILITY	7
.04 - COMMENCEMENT OF WORK	8
01380 -- PROGRESS PHOTOGRAPHS	8
.01 - CONTRACTOR SUBMISSION	8
01500 -- TEMPORARY FACILITIES AND CONTROLS	8
.01 - REQUIREMENTS	8
.02 - TEMPORARY LIGHTING AND ELECTRIC SERVICE	8
.03 - MATERIAL HOISTS	9
.04 - TEMPORARY USE OF PERMANENT ELEVATOR AS EQUIPMENT MATERIAL HOIST	10
.05 - TEMPORARY ENCLOSURES	10
.06 - TEMPORARY FENCE ENCLOSURES	10
.07 - MAINTENANCE OF PERMANENT ROADWAYS	10
.08 - TRAFFIC CONTROL	10
.09 - FIRE PREVENTION CONTROL	11
.10 - POLLUTION CONTROL	11
.11 - TEMPORARY FIELD OFFICE	12
.12 - RUBBISH REMOVAL	13
.13 - DISCONTINUANCE, CHANGES AND REMOVAL	13
.14 - PROJECT IDENTIFICATION	13

.15 - MOISTURE AND CONDENSATION CONTROL	14
.16 - PROTECTIVE SERVICES.....	14
01600 -- MATERIAL AND EQUIPMENT	14
.01 - STORAGE AND PROTECTION	14
01700 -- PROJECT CLOSE OUT.....	14
.01 - FINAL CLEANUP	14
.02 - REQUIRED CLOSEOUT DOCUMENTATION	14
.03 - ORIENTATION INSTRUCTION	15
.04 - PROJECT CLOSEOUT INSPECTIONS	15
01720 -- PROJECT RECORD DOCUMENTS.....	16
.01 - PROJECT RECORD DRAWINGS.....	16
01740 -- WARRANTIES, GUARANTEES, AND BONDS	17

01010 -- SUMMARY OF THE WORK

.01 - Work Under The Contract

The Work shall be as described in the Contract Documents.

.02 - Work by Others

Should any other contractor be engaged by the Owner to perform work on the Site or in areas adjoining or adjacent to the Site, the Contractor and such other contractor shall coordinate the work of the Contractor and such other contractor.

.03 - Items Not Included

The following items shown on the drawings are not included in the Work:

- A. Items indicated "By Others".
- B. Items indicated "N.I.C." (Not in Contract)
- C. Existing construction not indicated or specified to be removed, replaced or altered.

.04 - Openings and Chases

- A. The Contractor shall build openings, including but not limited to channels, chases and flues as required to complete the Work as set forth in the Contract and as directed by the Owner before any work is installed.
- B. After the installation and completion of any work for which openings, including but not limited to, channels, chases and flues, have been provided for the Contractor, the Contractor shall build in, over, around and finish all such openings as required to complete the Work.
- C. If a contractor fails to furnish drawings and information required in connection with such openings before the General Construction Contractor performs any Work affected thereby, said contractor who so fails to furnish such drawings and information shall bear the cost of all cutting and refinishing including that part of the General Construction Contractor's Work affected.
- D. The Contractor shall Furnish and Install all sleeves, inserts, hangers and supports required for the execution of the Work.
- E. Specific instructions shall be obtained from the Owner or the Owner's Representative before cutting beams or other structural members, arches or lintels.
- F. The Contractor shall not endanger the Work and shall not cut or alter the Work unless prior approval and instructions are received from the Owner or the Owner's Representative.

.05 - Surveys and Layout

- A. If, for any reason, stakes, batter boards or monuments are disturbed, it shall be the responsibility of the Contractor to reestablish them.
- B. The Owner or the Owner's Representative may order construction work suspended at any time when location of monuments, stakes, bench marks and other layout markings established by the Contractor are not adequate to permit checking the Work.
- C. The Contractor shall Provide and shall maintain axis lines on each floor and shall establish and shall maintain grade marks 4' 0" above the finished floor on each floor level.
- D. The Contractor shall Furnish such stakes and other required equipment, tools and materials, and all labor as may be required in laying out any part of the Work.

.06 - Scheduling

- A. The Contractor shall deliver to the Owner schedules and forms in accordance with the Contract.
- B. The Owner or the Owner's Representative may require the Contractor to modify schedules which the Contractor has submitted either before or after such schedules are approved so that:
 - 1. The Work shall not be delayed.
 - 2. Changes in the Work are reflected in the schedules of the Contractor.

.07 - Contractor Use of Premises

While performing the Work, the Contractor shall take every precaution against injuries to persons and damage to property.

01080 -- PERMITS AND COMPLIANCE

.01 - Permits and Licenses

The Contractor shall obtain, maintain and pay for all permits and licenses necessary for the execution of the Work and for the use of such Work when completed.

Prior to final payment the Contractor shall deliver to the Owner's Representative all permits and certificates of approval issued by any agency having jurisdiction.

.02 - Compliance

The Contractor shall give all notices, pay all fees and comply with all laws, rules and regulations applicable to the Work.

.03 - Additional Compliance

The Contractor, Subcontractors, and the employees of the Contractor and Subcontractors, shall comply with all regulations governing conduct, access to the premises, operation of equipment and systems and conduct while in or near the premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business of the Institution.

.04 - Royalties and Patents

It is the sole responsibility of the Contractor to determine what, if any, patents are applicable to the Project. The Contractor shall pay all royalties and/or license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Engineer, Environmental Consultant and Construction Manager harmless from loss, including attorney's fees, on account thereof.

01200 -- PROJECT MEETINGS

.01 - Project meetings shall be held to accomplish the following:

- A. Coordinate the Work.
- B. Establish a sound working procedure and relationship between all contractors, the Owner and the Owner's Representative.
- C. Review requisitions, proposals and change orders.
- D. Review the progress of the Work, review quality of work in place and review approval required by the Work and review delivery of materials.
- E. Expedite the Work to completion within the scheduled time limit.
- F. Review progress payments.

.02 - Initial Job Meeting (Orientation Meeting)

The Owner or the Owner's Representative shall call an initial job meeting which the Contractor shall attend. This meeting shall be called prior to the start of construction.

.03 - Job Progress Meetings

- A. Job progress meetings shall be scheduled by the Owner or the Owner's Representative during the course of construction. The Contractor or the Contractor's duly authorized representative and such Subcontractors as required by the Contractor or the Owner or the Owner's Representative shall be present at all job progress meetings. The Contractors and Subcontractors shall answer questions on progress, workmanship, approvals required, delivery of material and other subjects concerning the Work. The purpose of such meetings is to coordinate the efforts of all

concerned so that the Work proceeds without delay to completion as required by the Contract.

- B. The Owner or the Owner's Representative may require any schedule to be modified so that changes in the Work, delays or acceleration of any segment of the Work shall be reflected in such schedule. The Contractor shall cooperate with the Owner or the Owner's Representative in providing data for such changes in or modifications of schedules.

01300 -- SUBMITTALS

.01 - Schedules & Records

- A. Within the time set forth in the Contract, the Contractor is required to complete and submit to the Owner or the Owner's Representative the following forms:
 - 1. Submit construction progress schedule to the Owner or the Owner's Representative no later than thirty (30) calendar days after receipt by the Contractor of notice to proceed.
 - 2. Submit names and addresses of all Subcontractors to the Owner or the Owner's Representative within thirty (30) calendar days of approval of the construction progress schedule.
 - 3. Submit to the Owner or the Owner's Representative the date on which the Contractor proposes to award each subcontract a minimum of ten (10) days prior to such proposed award.
 - 4. Submit Shop Drawings and material sample schedule to the Owner or the Owner's Representative no later than thirty (30) days after approval of the construction progress schedule. Such schedule shall include the date of all Shop Drawings, samples and materials shall be submitted and the date approval is required.
 - 5. Submit to the Owner or the Owner's Representative on a form approved by the Owner, a schedule of anticipated monthly requisition amounts. Such schedule shall be submitted from time to time as directed by the Owner, the first such submission being required to be made by the Contractor within ten (10) days of receipt by the Contractor of a written order to proceed issued by the Owner. The amounts employed in preparing such schedules in no way shall be binding upon the Owner.
- B. Sample forms shall be provided by the Owner or the Owner's Representative for the above mentioned schedules and records.

01311 – PROJECT ANALYSIS

.01 - Project Control and Progress Meetings

- A. The Contractor shall attend all scheduling meetings as directed by the Owner or the Owner's Representative.
- B. In addition to the Owner or the Owner's Representative and the Contractor's Superintendent and Scheduling Coordinator, such meetings shall also be attended by representatives of such subcontractors as the Contractor, the Owner or the Owner's Representative may deem advisable. The agenda for such meetings shall include the progress and current status of the Work, proposed solutions for problem areas and a review of schedules for future Work in order to meet the Contractor's objectives and his obligations under the Contract. Consideration shall be given to establishing actual start dates, actual completion dates, planned starts and finishes, quantities installed, man hours worked, as well as other data relevant to the performance of the Contract.
- C. At least one week before each meeting described in subsection .01A of this Division 01311, the Contractor shall furnish progress data in the form required by the Owner or the Owner's Representative as follows:
 - 1. The status of all activities as of date determined by the Owner or the Owner's Representative.
 - 2. A list of actual start and completion dates for all activities.
 - 3. Projected durations of completion of those activities in progress.
 - 4. Relevant data of submittals in progress including equipment releases and equipment in fabrication.
 - 5. All other information which in the discretion of the Owner or its Representative, may be required to complete the Project Schedule Update.

.02 – Payment

The Contractor's Payment Breakdown and Monthly Requisition as called for by Section 17.01 of the General Conditions of the Contract shall be the basis by which the Contractor is to be paid.

.03 - Time of Completion

It is the sole responsibility of the Contractor to complete the Work within the time of completion required by the Contract.

01340 -- SHOP DRAWINGS AND SAMPLES

.01 - Contractor Submittal

- A. The Contractor shall submit the Shop Drawings and samples required by the Architect and the Contractor shall adhere to all submittal and scheduling requirements for Shop Drawings and samples. After examination of such Shop Drawings and samples by the Architect and the return of such items by the Architect to the Contractor, the Contractor shall make corrections indicated and shall furnish to the Architect the required number of corrected copies of Shop Drawings or samples.
- B. Shop Drawings shall be accompanied by a letter of transmittal to the Owner or the Owner's Representative requesting approval and date approval is desired.
- C. Each Shop Drawings and letter of transmittal shall be identified with the following information:
 - 1. Project title
 - 2. Contract name
 - 3. Date of the drawing, including dates of any revisions
 - 4. Name of Contractor, name of Subcontractor, material supplier and manufacturer, as applicable
 - 5. Name of person or firm preparing Shop Drawings
 - 6. Contract drawing numbers and specifications, section division and paragraph numbers used as references in preparing Shop Drawings, and titles of items to which the Shop Drawing refers.
- D. Shop Drawings shall show the design, dimensions, connections and other details necessary to insure that the Shop Drawings accurately interpret the Contract Documents and shall also show adjoining Work in such Detail as required to provide proper connections with said adjoining Work. Where adjoining connected Work requires Shop Drawings, such Shop Drawings shall be submitted to the Owner or the Owner's Representative for approval at the same time so that connections can be checked.
- E. The Contractor shall verify all field measurements. Measurements available prior to submittal of Shop Drawings shall be shown and so noted on the Shop Drawings. Measurements not available prior to submission of Shop Drawings shall be noted on the Shop Drawings as not available and such measurements shall be obtained prior to fabrication.

- F. The Contractor shall submit manufacturer's drawings and specifications when necessary to fully explain apparatus or equipment required by the Work. These manufacturer's drawings and specifications shall be treated as Shop Drawings. Manufacturer's catalog numbers alone are not acceptable as sufficient information for compliance with this requirement.
- G. Samples shall be accompanied by a letter of transmittal to the Owner or the Owner's Representative requesting approval, and date approval is desired.
- H. Each sample shall be labeled with the following information:
 - 1. Project title
 - 2. Contract name
 - 3. Date of submission
 - 4. Name and quality of the material
 - 5. Name of Contractor, name of Subcontractor, material supplier and manufacturer, as applicable
 - 6. Contract drawing numbers and specification section, division and paragraph numbers used as reference in preparing samples.
- I. Samples shall be of sufficient size and number to show the quality, type, color, finish and texture of the material required to be furnished by the Contractor pursuant to the Contract.

.02 - Contractor Review

The Contractor shall review, verify and determine all field measurements, field construction criteria, materials, catalog numbers and similar data, shall coordinate each Shop Drawing and sample with the requirements of the Contract and shall determine whether or not such Shop Drawings are in conformity with the provisions of the Contract before submitting the Shop Drawings to the Architect for approval.

.03 - Contractor Responsibility

The Architect's approval of Shop Drawings and samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract. The Contractor shall be responsible for the accuracy of the Shop Drawings and samples and for the conformity of Shop Drawings and samples with the Contract unless the Contractor has notified the Architect of the deviation in writing at the time of submission and has received from the Architect written approval of the specified deviations. The Architect's approval shall not relieve the Contractor of responsibility for errors or omissions in the Shop Drawings or samples.

.04 - Commencement of Work

No portion of the Work shall be commenced until required Shop Drawings or samples are approved by the Architect.

01380 -- PROGRESS PHOTOGRAPHS

.01 - Contractor Submission

- A. The Contractor shall furnish to the Owner, progress photographs of the Work as follows: three (3) 8" x 10" glossy prints of each of the following views:
 - 1. Two (2) different views of the area in which the building or buildings are to be located, taken before excavation starts.
 - 2. Two (2) different views for each building when footings are in place and forms completed.
 - 3. Four (4) different views for each building when foundations are completed.
 - 4. Four (4) different views for each building when exterior wall is fifty per cent (50%) completed.
 - 5. Four (4) different views for each building when the structure is ready for roofing.
 - 6. Four (4) different exterior views in color for each building at completion.
 - 7. Six (6) interior views in color for each building as directed upon completion.
- B. A title identifying the view shown by each photograph and date taken shall appear on the back of each print.

01500 -- TEMPORARY FACILITIES AND CONTROLS

.01 - Requirements

The Contractor shall Provide the temporary facilities and controls as hereinafter specified and as required by law.

.02 - Temporary Lighting and Electric Service

The Contractor shall Provide and maintain all temporary lighting and power required in connection with the Contractor's operations from the commencement of the Work until the completion of each structure or for such other time as

directed by the Owner or the Owner's Representative. When the use of such temporary lighting and power is no longer required, all temporary wiring and equipment shall be completely removed by the Contractor. The Contractor shall make the necessary application to the lighting company and pay for all charges, costs and expenses incidental to the installation and maintenance of temporary lighting and power as required in connection with the Contractor's operations, and the Contractor shall pay for all power used. The minimum temporary lighting to be provided is at the rate of one-quarter watt per square foot and is to be maintained in each room and changed as required when interior walls are being erected. The required temporary lighting must be maintained for twenty-four (24) hours a day and seven (7) days a week at all stair levels and in all corridors below ground; in all other spaces temporary lighting is to be maintained only during working hours. All temporary wiring and equipment shall be in conformity with the National Electric Code. Three-phase temporary power circuits shall be installed as required to operate construction equipment of the various trades and to install and test equipment such as pumps and elevators. The Contractor shall install and maintain temporary or permanent service for the permanently installed building equipment such as sump pumps, boilers, boiler controls, fans, pumps, so that such equipment may be operated when required and so ordered by the Owner or the Owner's Representative for drainage or for temporary heat.

.03 - Material Hoists

A. General

1. Material hoists shall be operated by diesel, gasoline or steam engines and shall be complete with all equipment necessary for operation. Such hoists shall run from grade to roof, shall be installed immediately following the structural framing, centering or form work, and centering or form work unless otherwise approved by the Owner or the Owner's Representative. Electrically operated hoists shall not be used except as otherwise allowed by the Contract.
2. Material hoists shall meet any and all requirements of law, rule or regulation.
3. Hoist cars shall be of required size and design for the hoisting of all normal size building materials.

B. The Contractor shall:

1. Furnish, install, maintain and operate at the Contractor's expense, all hoisting equipment required for the Work.
2. Furnish all labor required for the Work.

.04 - Temporary Use of Permanent Elevator as Equipment Material Hoist

A. The Contractor shall:

1. Use the temporary hoists until a building is completed, or until the Contractor may, with the Owner's permission, use the equipment of one (1) elevator in a building for temporary service after the permanent elevator equipment and the permanent electric service have been installed.
2. If the Contractor elects to use such permanent elevator equipment, the Contractor shall:
 - a. Provide adequate protection for such equipment and shall operate such equipment within a capacity not to exceed that allowed by law, rule or regulation.
 - b. Provide for the maintenance of the elevator equipment as approved by the Owner or the Owner's Representative.
 - c. Leave such equipment in perfect condition.

B. The permanent elevator equipment shall be ready for use when required by the Work and shall permit any use approved by the Owner or the Owner's Representative.

.05- Temporary Enclosures

The Contractor shall:

- A. Provide, install and maintain any temporary weather resistant enclosures for all openings in exterior walls and roof that are not enclosed.
- B. After building is enclosed, maintain proper temperatures required by the Contract.

.06 - Temporary Fence Enclosures

The Contractor shall Provide, Install and maintain any temporary fence enclosures required by the Contract.

.07 - Maintenance of Permanent Roadways

The Contractor shall immediately remove dirt and debris which may collect on permanent roadways due to the Work.

.08 – Traffic Control

- A. Routes to and from the location of the Work shall be as indicated in the Contract or as directed by the Owner or the Owner's Representative.
- B. Parking areas for the use of those engaged in the Work shall be as indicated in the Contract or as directed by the Owner or the Owner's Representative.

.09 - Fire Prevention Control

The Contractor Shall:

- A. Provide private unlisted telephone service reserved for fire calls at a location or locations approved by the Owner or the Owner's Representative. Such service shall be in addition to any other telephone service. The Contractor shall pay all costs thereof until completion and acceptance of the Work or as otherwise directed by the Owner or the Owner's Representative.
- B. Comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining to the Work and, particularly, in connection with any cutting or welding performed as part of the Work.

.10 - Pollution Control

The Contractor shall:

- A. Comply with all laws, rules and regulations governing pollution control, including but not limited to those of the Department of Environmental Conservation of the State of New York.
- B. Take all necessary precautions including, but not limited to digging and maintaining settling basins and dams; diverting streams, and taking all other actions that may be necessary to prevent silt, and waste of any kind from being deposited, silting and reduction of quality of streams below the construction area and downstream properties as a result of the Work.
- C. Refrain from the disposal of volatile fluid wastes into storm or sanitary sewer systems, approved sewage disposal systems or any waterway.
- D. Refrain from burning trash or waste materials.

.11 - Temporary Field Office

- A. The Contractor may Provide a temporary office structure, for the Contractor's use during the course of the Work.
 - 1. The Contractor must receive prior written approval from the Owner or the Owner's Representative for such temporary office structure in relation to location, type of structure, and included facilities.
 - 2. All toilet and sink facilities in any such office structure shall be connected to an approved sewage disposal system.
 - 3. The Contractor shall remove the temporary office structure from the Site and shall repair the Site and finish the area as directed by the Owner or the Owner's Representative.
- B. The Contractor shall:
 - 1. Provide a temporary office structure completely separate from any other office structures at a location approved by the Owner or the Owner's Representative until the Work is completed and is accepted.
 - 2. Provide such office structure for the exclusive use of the Owner.
 - 3. Bear all costs in relation to the furnishing, construction and removal of such office structure.
 - 4. Repair and refinish the area as directed by the Owner or the Owner's Representative.
 - 5. Construct such office structure and furnish such office structure as required by the Contract.
 - 6. Maintain such office structure in a sanitary condition and in proper repair, properly heat the structure, furnish the fuel and furnish all utilities and pay all utility charges.
 - 7. Install a telephone for the sole use of the Owner or the Owner's Representative and pay all service and local toll charges incurred as a result of the use of such telephone service.
- C. With the prior written approval of the Owner or the Owner's Representative any other Contractor may erect a substantial office structure at the Site for the use of such Contractor in relation to the Work.
 - 1. All toilet and sink facilities in any such office structure shall be connected to an approved sewage disposal system.

2. Such Contractor shall remove the temporary office structure from the Site and shall repair the Site and finish the area as directed by the Owner or the Owner's Representative.
- D. When adequate space is available in a building, the Contractor may transfer such office to available space with the prior written permission of the Owner or the Owner's Representative.
- E. Trailers providing comparable facilities may be accepted at the discretion of the Owner or the Owner's Representative.

.12 - Rubbish Removal

- A. The Contractor shall:
 1. Keep the Work free from rubbish at all times.
 2. Clean all enclosed structures daily.
 3. Remove rubbish from the Site at least once a week.
- B. The Contractor shall conform with the following:
 1. Burning of rubbish shall not be permitted.
 2. All rubbish shall be lowered by way of chutes, taken down by hoists, or lowered in receptacles. Under no circumstances shall any rubbish be dropped or thrown from one (1) level to another inside or outside any building.

.13 - Discontinuance, Changes and Removal

The Contractor shall:

- A. Discontinue all temporary services required by the Contract when so directed by the Owner or the Owner's Representative. The discontinuance of any such temporary service prior to the completion of the Work shall not render the Owner liable for any additional cost entailed thereby.
- B. Remove and relocate such temporary facilities as directed by the Owner or the Owner's Representative without additional cost to the Owner, and shall restore the Site and the work to a condition satisfactory to the Owner.

.14 - Project Identification

- A. No signs or advertisements shall be displayed on the site except as required by the Contract.

- B. The Contractor shall Furnish, erect and maintain the Site, the exact location thereof to be designated by the Owner or the Owner's Representative, a construction sign, in the form provided by the Contract.

.15 - Moisture and Condensation Control

The Contractor shall provide for ventilation of all structures until Physical Completion and acceptance of the Work and shall control such ventilation to avoid excessive rates of drying of construction materials, including but not limited to concrete and to plaster, and to prevent condensation on sensitive surfaces.

.16 - Protective Services

The Contractor shall provide security services required by the Contract.

01600 -- MATERIAL AND EQUIPMENT

.01 - Storage and Protection

- A. Materials stored on the Site shall be neatly piled and protected, and shall be stored in an orderly fashion in locations that shall not interfere with the progress of the Work or with the daily functioning of the Institution.
- B. Should it become necessary during the course of the Work to move materials or equipment stored on the Site, the Contractor, at the direction of the Owner or the Owner's Representative, shall move such material or equipment.

01700 -- PROJECT CLOSE OUT

.01 - Final Cleanup

- A. The Contractor shall leave the Work ready for use and occupancy without the need of further cleaning of any kind.
- B. The Contractor shall remove all tools, appliances, projects signs, material and equipment from the premises as soon as possible upon completion of the Work.
- C. The Work is to be turned over to the Owner in new condition, in proper repair and in perfect adjustment.

.02 - Required Close Out Documentation

- A. Prior to final payment the Owner shall receive the following documents as required by the Contract:

1. The Contractor's general guarantee.
 2. Specific guarantees, material, equipment and other items of work.
 3. All certificates obtained in connection with the Work.
 4. All final photographs of the Work.
- B. The Owner shall also receive from the Contractor prior to final payment:
1. A complete listing of all Subcontractors, business addresses and items supplied by each such Subcontractor.
 2. A listing of manufacturer's of major materials, equipment and systems installed in the Work.
 3. A copy of all test data taken in connection with the Work.
 4. Three (3) copies of all operation and maintenance manuals.
 5. All keys, tools, screens, spare construction material, finishing material and equipment required to be furnish to the Owner as part of the Work.

.03 - Orientation Instruction

Prior to final payment appropriate maintenance personnel of the Owner shall be oriented and instructed by the Contractor in the operation of all systems and equipment as required by the Contract.

.04 - Project Close Out Inspections

- A. When the Work has reached such a point of completion that the building or buildings, equipment or apparatus or any part thereof required by the Owner for occupancy or use can be so occupied and used for the purpose intended, the Owner or the Owner's Representative shall make a detailed inspection of the Work to insure that all requirements of the Contract have been met and that the Work is complete and is acceptable.
- B. A copy of the report of the inspection shall be furnished to the Contractor as the inspection progresses so that the Contractor may proceed without delay with any part of the Work found to be incomplete or defective.
- C. When the items appearing on the report of inspection have been completed or corrected, the Contractor shall so advise the Owner and the Owner's Representative. After receipt of the notification, the Owner or the Owner's Representative shall inform the Contractor of the date and time of final inspection. A copy of the report of the final inspection containing all

remaining contract exceptions, omissions and incompletions shall be furnished to the Contractor.

- D. After receipt of notification of completion and all remaining contract exceptions, omissions and incompletions from the Contractor, the Owner and the Owner's Representative shall make an inspection to verify completion of the exception items appearing on the report of final inspection.

01720 -- PROJECT RECORD DOCUMENTS

.01 - Project Record Drawings

- A. The purpose of the project drawings is to record the actual location of the Work in place including but not limited to underground lines, concealed piping within buildings, concealed valves and control equipment, and to record changes in the Work.
- B. In addition to the sets of contract drawings that are required by the Contractor on the Site to perform the Work, the Contractor shall maintain, at the Site, one (1) copy of all drawings, specifications and addenda that are part of the Contract as awarded. Each of these documents should be clearly marked "Project Record Copy", maintained in a clean and neat condition available at all times for inspection by the Owner or the Owner's Representative, and shall not be used for any other purpose during the progress of the Work.
- C. Project Record Requirements
 - 1. The Contractor shall mark-up the "Project Record Copy" to show:
 - (a) Approved changes in the Work.
 - (b) Location of underground Work and concealed Work.
 - (c) Details not shown in the original Contract Documents.
 - (d) Any relocation of Work.
 - (e) All changed in dimensions.
 - (f) All access doors.
 - (g) Location of all plumbing, heating, ventilating, air conditioning or electrical assemblies.
 - 2. Such information shall include, but shall not be limited to:

- (a) Footing depth in relation to finished grade elevations.
 - (b) Any change in floor elevations.
 - (c) Any structural changes.
 - (d) Any substitutions.
 - (e) Elevations and locations of all underground utilities, services, or structures referenced to permanent above-ground structures or monuments.
 - (f) Designation of all utilities as to the size and use of such utilities.
 - (g) All invert elevations of manholes.
 - (h) The location of all utilities, services and appurtenances concealed in building structures that have been installed different from that required by the Contract.
 - (i) Any approved change order.
- D. The Contractor shall keep the Project Record Documents up-to-date from day to day as the Work progresses. Appropriate documents are to be updated promptly and accurately; no Work is to be permanently concealed until all required information has been recorded.
- E. The project record drawings are to be submitted by the Contractor to the Owner or the Owner's Representative when all the Work is completed and is approved by the Owner and the Owner's Representative before the Contractor may request final payment.

01740 -- WARRANTIES, GUARANTEES, AND BONDS

See the Contract Documents for details.

SECTION V.
GENERAL CONDITIONS

Table of Contents

General Conditions

PAGE

ARTICLE 1 -- DEFINITIONS	1
ARTICLE 2 -- CONTRACT DOCUMENTS	2
SECTION 2.01 - CAPTIONS.....	2
SECTION 2.02 - CONFLICTING CONDITIONS	2
SECTION 2.03 - NOTICE AND SERVICE THEREOF	2
SECTION 2.04 - NOMENCLATURE	3
SECTION 2.05 - INVALID PROVISIONS	3
ARTICLE 3 -- INTERPRETATION OF CONTRACT DOCUMENTS	3
SECTION 3.01 - OWNER	3
SECTION 3.02 - MEANING AND INTENT OF CONTRACT DOCUMENTS	3
SECTION 3.03 - ORDER OF PREFERENCE	4
ARTICLE 4 -- MATERIALS AND LABOR.....	4
SECTION 4.01- CONTRACTOR'S OBLIGATIONS	4
SECTION 4.02 - CONTRACTOR'S TITLE TO MATERIALS.....	5
SECTION 4.03 - "OR EQUAL" CLAUSE.....	5
SECTION 4.04 - QUALITY, QUANTITY AND LABELING.....	5
ARTICLE 5 -- CONTRACTOR.....	6
SECTION 5.01 - SUPERVISION BY CONTRACTOR	6
SECTION 5.02 - REPRESENTATIONS OF CONTRACTOR.....	6
SECTION 5.03 - COPIES OF CONTRACT DOCUMENTS FOR CONTRACTORS	7
SECTION 5.04 - MEETINGS.....	7
SECTION 5.05 - RELATED WORK	7
SECTION 5.06 - ERRORS OR DISCREPANCIES	7
ARTICLE 6 -- SITE CONDITIONS.....	7
SECTION 6.01 - SUBSURFACE OR SITE CONDITIONS FOUND DIFFERENT	7
SECTION 6.02 - VERIFYING DIMENSIONS AND CONDITIONS	8
SECTION 6.03 - SURVEYS	8
ARTICLE 7 -- INSPECTION AND ACCEPTANCE.....	9
SECTION 7.01 - ACCESS TO THE WORK	9
SECTION 7.02 - NOTICE FOR TESTING	9
SECTION 7.03 - REEXAMINATION OF WORK	9
SECTION 7.04 - INSPECTION OF WORK.....	9
SECTION 7.05 - DEFECTIVE OR DAMAGED WORK.....	10
SECTION 7.06 - TESTING	10
SECTION 7.07 - ACCEPTANCE.....	10
ARTICLE 8 -- CHANGES IN THE WORK	10
SECTION 8.01 - CHANGES	10
SECTION 8.02 - OVERHEAD AND PROFIT ALLOWANCE.....	12
SECTION 8.02A - DEDUCT CHANGE ORDERS.....	14
SECTION 8.03 - FORM OF CHANGE ORDERS.....	14
ARTICLE 9 -- TIME OF COMPLETION.....	15
SECTION 9.01 - TIME OF COMPLETION.....	15

ARTICLE 10 -- TERMINATION OR SUSPENSION	17
SECTION 10.01 - TERMINATION FOR CAUSE	17
SECTION 10.02 - TERMINATION FOR CONVENIENCE OF OWNER.....	17
SECTION 10.03 - OWNER'S RIGHT TO DO WORK	17
SECTION 10.04 -SUSPENSION OF WORK.....	18
ARTICLE 11 -- DISPUTES	18
SECTION 11.01 - CLAIMS FOR EXTRA WORK.....	18
SECTION 11.02 -CLAIMS FOR DELAY	19
SECTION 11.03 - FINALITY OF DECISIONS.....	19
ARTICLE 12 -- SUBCONTRACTS.....	20
SECTION 12.01 - SUBCONTRACTING.....	20
ARTICLE 13 -- CONTRACT COORDINATION AND COOPERATION	21
SECTION 13.01 - COOPERATION WITH OTHER CONTRACTORS	21
SECTION 13.02- SEPARATE CONTRACTS	22
SECTION 13.03 - COORDINATED COMPOSITE DRAWINGS.....	22
ARTICLE 14 -- PROTECTION OF RIGHTS, PERSONS AND PROPERTY	23
SECTION 14.01 -ACCIDENT PREVENTION.....	23
SECTION 14.02 -SAFETY PROGRAMS.....	23
SECTION 14.03 - PROTECTION OF WORK AND PROPERTY	23
SECTION 14.04 -ADJOINING PROPERTY	24
SECTION 14.05 - RISKS ASSUMED BY THE CONTRACTOR	24
ARTICLE 15--INSURANCE AND CONTRACT SECURITY	26
SECTION 15.01 - INSURANCE PROVIDED BY CONTRACTOR.....	26
SECTION 15.01A – OTHER INSURANCE PROVIDED BY CONTRACTOR	29
SECTION 15.02 -GENERAL CONFORMANCE	29
SECTION 15.03 -CONTRACT SECURITY	29
SECTION 15.04 - ADDITIONAL OR SUBSTITUTE BOND	27
SECTION 15.05 - FAILURE TO COMPLY WITH PROVISIONS OF ARTICLE 15	28
ARTICLE 16 -- USE OR OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER.....	28
SECTION 16.01 - OCCUPANCY PRIOR TO ACCEPTANCE.....	28
ARTICLE 17 -- PAYMENT	30
SECTION 17.01 -PROVISION FOR PAYMENT.....	30
SECTION 17.02 -ACCEPTANCE OF THE FIRST PAYMENT PURSUANT TO SECTION 17.01 D. OF THE CONTRACT CONSTITUTES RELEASE.....	32
SECTION 17.03 - RELEASE AND CONSENT OF SURETY	32
SECTION 17.04 - LIENS	32
SECTION 17.05 - WITHHOLDING OF PAYMENTS.....	33
SECTION 17.06 - OWNER'S RIGHT TO AUDIT AND INSPECTION OF RECORDS.....	33
SECTION 17.07 - FALSE STATEMENTS/INFORMATION.....	33
ARTICLE 18 -- TAX EXEMPTION.....	34
SECTION 18.01 -TAX EXEMPTION	34
ARTICLE 19 -- GUARANTEE	34
SECTION 19.01 - GUARANTEE	34
ARTICLE 20 -- STANDARD PROVISIONS.....	34

SECTION 20.01 - PROVISIONS REQUIRED BY LAW DEEMED INSERTED.....	34
SECTION 20.02 - COMPLIANCE WITH LAWS, RULES AND REGULATIONS.....	35
SECTION 20.03 - LAWS GOVERNING THE CONTRACT	35
SECTION 20.04 - ASSIGNMENTS.....	35
SECTION 20.05 - NO THIRD PARTY RIGHTS.....	35
SECTION 20.06 - CONTRACT DEEMED EXECUTORY	35
SECTION 20.07 - ANTI-RIOT PROVISIONS	35
SECTION 20.08 - DOMESTIC STEEL	36
SECTION 20.09 - PROTECTION OF LIVES AND HEALTH	36
SECTION 20.10 - PROHIBITED INTERESTS/ ETHICAL CONDUCT.....	38
SECTION 20.11 – STATE AND FEDERAL LABOR LAW PROVISIONS	39
SECTION 20.12 - NONDISCRIMINATION	42
SECTION 20.13 - LIMITATION ON ACTIONS	43
SECTION 20.14 - WAIVER OF REMEDIES	44
SECTION 20.15 - WAIVER OF CERTAIN CAUSES OF ACTION.....	44
SECTION 20.16 - CONTRACTOR RELATIONSHIP	44
SECTION 20.17 - FAILURE TO COMPLY WITH THIS ARTICLE	44
SECTION 20.18 - YEAR 2000 WARRANTY.....	44
SECTION 20.19 - FALSE RECORDS/KICKBACKS	45
ARTICLE 21 - COOPERATION WITH INVESTIGATIONS	45

ARTICLE 1 -- DEFINITIONS

Section 1.01 - The following terms as used in the Contract Documents shall be defined as follows:

Beneficial Occupancy - The use, occupancy or operation by the Owner of the Work, or any part thereof, as evidenced by a notification of Beneficial Occupancy executed by the Owner.

Construction Completion - Acceptance by the Owner of the Work as evidenced by a Notification of Construction Completion executed by the Architect.

Construction Manager - A person, persons, firm, partnership or corporation, regularly engaged in the management of construction projects, and so designated by the Owner.

Consultant - A person, persons, firm, partnership or corporation providing Architectural, Engineering or other professional services, and so designated by the Owner.

Contract - The agreement between the Owner and the Contractor consisting of the Contract Documents including all amendments and supplements thereto.

Contract Documents - The Contract, Notice to Bidders, Bid Checklist, Bid Terms and Conditions, Contractor Reference Sheet, Contract Terms and Conditions, Bid Analysis Form, Affirmative Action Form, Change Order Form, Contractors Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Information for Bidders, Form of Bid, General Conditions, General Requirements, Bonds, Drawings, Specifications, Addenda, Change Orders and any supplementary data together with all provisions of law deemed to be inserted in the Contract or incorporated by reference.

Contractor - A person, persons, firm, partnership or corporation with whom the Contract is entered into by the Owner to perform the Work.

Extra Work - Any work in addition to the Work initially required to be performed by the Contractor pursuant to the Contract.

Furnish - To deliver to the site ready for installation.

Install - To unload at the delivery point at the Site and perform every operation necessary to establish secure mounting and correct operation at the proper location.

Owner – The Fashion Institute of Technology and/or its auxiliary corporations, as applicable.

Owner's Representative - A person, persons, firm, partnership or corporation so designated by the Owner.

Project - Work at the Site(s) carried out pursuant to one or more sets of Contract Documents.

Provide - To Furnish and Install complete in place and ready for operation and use.

Shop Drawings - Diagrams, fabrication drawings, illustration, schedules, test data, performance charts, cuts brochures and other data which are submitted by the Contractor to the Architect and illustrate any portion of the Work. These drawings and data are reviewed and acted upon by the architect.

Site - The area within the Contract limit, as indicated by the Contract.

Subcontract - An agreement between the Contractor and Subcontractor for work on the Site.

Subcontractor - A person, persons, firm, partnership or corporation under contract with the Contractor, or under contract with any subcontractor, to provide labor and material at the Site.

Substantial Completion - Stage of construction at which the Architect determines there is a minimal amount of the Work to be completed, or Work to be corrected.

Work - The performance of all obligations imposed upon the Contractor by the Contract.

ARTICLE 2 -- CONTRACT DOCUMENTS

Section 2.01 - Captions

The table of contents, titles, captions, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect the interpretation of the provisions to which they refer.

Section 2.02 - Conflicting Conditions

Should any provision in any of the Contract Documents be in conflict or inconsistent with any of the General Conditions or Supplements thereto, the General Conditions or Supplements thereto shall govern.

Section 2.03 - Notice and Service Thereof

Any notice to the Contractor from the Owner relative to any part of the Contract shall be in writing and service considered complete when said notice is mailed to the Contractor at the last address given by the Contractor, or when delivered in person to said Contractor or the Contractor's authorized representative.

Section 2.04 - Nomenclature

Materials, equipment or other Work described in words which have a generally accepted technical or trade meaning shall be interpreted as having said meaning in connection with the Contract.

Section 2.05 - 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 determined to 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.

ARTICLE 3 -- INTERPRETATION OF CONTRACT DOCUMENTS

Section 3.01 – Owner/Architect

- A. The Owner's representative/Architect shall give all orders and directions contemplated under the Contract relative to the execution of the Work. The Architect shall determine the amount, quality, acceptability of the Work and shall decide all questions which may arise in relation to said Work. The Owner's estimates and decisions shall be final except as otherwise expressly provided. In the event that any question arises between the Owner and Contractor concerning the Contract, the decision of the Owner shall be a condition precedent to the right of the Contractor to receive any money or payment under the Contract.
- B. Any differences or conflicts concerning performance which may arise between the Contractor and other contractors performing Work for the Owner shall be adjusted and determined by the Owner's representative.
- C. The Owner may act through a representative designated by the Owner.

Section 3.02 - Meaning and Intent of Contract Documents

The meaning and intent of all Contract Documents shall be as interpreted by the Architect.

Section 3.03 - Order of Preference

- A. Figured dimensions shall take precedence over scaled dimensions. Larger scale drawings shall take precedence over smaller scale drawings. Latest addenda shall take precedence over previous addenda and earlier dated drawings and specifications.
- B. Should a conflict occur in or between or among any parts of the Contract Documents that are entitled to equal preference, the better quality or greater quantity of material, of the more specific compared to the general, shall govern, unless the Architect/Owner's representative directs otherwise.
- C. Drawings and specifications are complementary. Anything shown on the drawings and not mentioned in the specifications, or mentioned in the specifications and not shown on the drawings, shall have the same effect as if shown or mentioned in both.

ARTICLE 4 -- MATERIALS AND LABOR

Section 4.01 - Contractor's Obligations

- A. The Contractor shall, in a good workmanlike manner, perform all the Work required by the Contract Documents within the time specified in the Contract.
- B. The Contractor shall Furnish, erect, maintain, and remove such construction plant and such temporary Work as may be required for the performance of its work. The Contractor shall be responsible for the safety, efficiency and adequacy of the Contractor's plant, appliances and methods, and for damage which may result from failure or improper construction, maintenance or operation of said plant, appliances and methods. The Contractor shall comply with all terms of the Contract, and shall, carry on and complete the entire Work to the satisfaction of the Owner.
- C. Any labor, materials or means whose employment or utilization during the course of this Contract may tend to or in any way cause or result in strike, work stoppages, delays, suspension of Work or similar troubles by workmen employed by the Contractor, its subcontractors or material suppliers, or by any of the trades working in or about the buildings and premises where Work is being performed under this Contract, or by other contractors, their subcontractors or material suppliers pursuant to other contracts shall not be allowed. Any violation by the Contractor of this requirement may in the sole judgment of the Owner be considered as proper and sufficient cause for declaring the Contractor to be in default, and for the Owner to take action against the Contractor as set forth in the General Conditions Article entitled "Termination" or such other action as the Owner may deem proper.

Section 4.02 - Contractor's Title to Materials

- A. No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by any other party. The Contractor warrants that the Contractor has full, good and clear title to all materials and supplies used by the Contractor in the Work, or resold to the Owner pursuant to the Contract free from all liens, claims or encumbrances.
- B. All materials, equipment and articles which become the property of the Owner shall be new unless specifically stated otherwise.

Section 4.03 - "Or Equal" Clause

- A. Whenever a material, article or piece of equipment is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue number or make, said identification is intended to establish a standard. Any material, article or equipment of other manufacturers and vendors which performs satisfactorily the duties imposed by the general design may be considered equally acceptable provided that, in the opinion of the Architect/Engineer, the material, article or equipment so proposed is of equal quality, substance and function and the Contractor shall not Provide, Furnish or Install any said proposed material, article or equipment without the prior written approval of the Architect/Engineer. The burden of proof and all costs related thereto concerning the "or equal" nature of the substitute item, whether approved or disapproved, shall be borne by the Contractor.
- B. Where the Architect/Engineer, pursuant to the provisions of this Section, approves a product proposed by the Contractor and said proposed product requires a revision of the Work covered by this Contract, or the Work covered by other contracts, all changes to the Work of all contracts, revision or redesign, and all new drawings and details required therefore shall be provided by the Contractor at the cost of the Contractor and shall be subject to the approval of the Consultant.
- C. No substitution will be permitted which may result in a delay to the Project.

Section 4.04 - Quality, Quantity and Labeling

- A. The Contractor shall Furnish materials and equipment of the quality and quantity specified in the Contract.
- B. When materials are specified to conform to any standard, the materials delivered to the Site shall bear manufacturer's labels stating that the materials meet said standards.

- C. The above requirements shall not restrict or affect the Owner's right to test materials as provided in the Contract.
- D. The Contractor shall develop and implement quality control plans to assure itself and the Owner that all Work performed by the Contractor and its Subcontractors complies fully with all Contract requirements, and shall submit the plans to the Owner as required by the Contract. See Submittals Section of the General Requirements. The Contractor's quality control plans shall be independent of any testing or inspection performed by or on behalf of the Owner.

ARTICLE 5 -- CONTRACTOR

Section 5.01 - Supervision by Contractor

- A. The Contractor shall provide full-time competent supervision for the duration of the Contract; during the course of on-site work the Contractor shall provide a full-time on-site superintendent who shall have full authority to act for the Contractor at all times. The Superintendent shall be able to read, write and speak English fluently, as well as communicate with the workers.
- B. If at any time the supervisory staff is not satisfactory to the Owner, the Contractor shall, if directed by the Owner, immediately replace such supervisory staff with other staff satisfactory to the Owner.
- C. The Contractor shall remove from the Work any employee of the Contractor or of any Subcontractor when so directed by the Owner.

Section 5.02 - Representations of Contractor

The Contractor represents and warrants:

- A. That it is financially solvent and is experienced in and competent to perform the Work, and has the staff, equipment, subcontractors and suppliers available to complete the Work within the time specified for the Contract price.
- B. That it is familiar with all Federal, State or other laws, ordinances, orders, rules and regulations that may in any way affect the Work.
- C. That any temporary and permanent Work required by the Contract can be satisfactorily constructed, and that said construction will not injure any person or damage any property.
- D. That it has carefully examined the Contract and the Site of the Work and that, from the Contractor's own investigations and through the bid process and requirements is satisfied as to the nature and materials likely to be encountered, the character of equipment and other facilities needed

for the performance of the Work, the general and local conditions and all other materials or items which may affect the Work.

- E. That it is satisfied that the Work can be performed and completed as required in the Contract, and warrants that it has not been influenced by any oral statement or promise of the Owner or the Consultant.

SECTION 5.03 – COPIES OF CONTRACT DOCUMENTS FOR CONTRACTORS

- A. The Owner shall furnish to the Contractor, without charge, up to five (5) copies of Contract Documents.
- B. Any sets in excess of the number mentioned above may be furnished to the Contractor at the cost of reproduction and mailing or delivery.

SECTION 5.04 - MEETINGS

The Contractor shall attend all meetings as directed by the Owner or the Owner's Representative.

SECTION 5.05 – RELATED WORK

To ascertain the relationship of its work to all Work required by the Contract Documents, the Contractor shall examine the Contract Documents for Work of its Contract and any related work of other contracts.

SECTION 5.06 – ERRORS OR DISCREPANCIES

The Contractor shall examine the Contract thoroughly before commencing the Work and report in writing any errors or discrepancies to the Owner or the Owner's Representative within five (5) days of discovery.

ARTICLE 6 -- SITE CONDITIONS

SECTION 6.01 – SUBSURFACE OR SITE CONDITIONS FOUND DIFFERENT

- A. The Contractor acknowledges that the Contract amount set forth in its bid includes such provisions which the Contractor deems proper for all Site

conditions the Contractor could reasonably anticipate encountering as indicated in the Contract or from the Contractor's inspection and examination of the Site prior to submission of bids.

SECTION 6.02 – VERIFYING DIMENSIONS AND CONDITIONS

- A. The Contractor shall take all measurements and verify all dimensions and conditions at the Site before proceeding with the Work. If said dimensions or conditions are found to be in conflict with the Contract, the Contractor immediately shall refer said conflict to the Architect in writing. The Contractor shall comply with any revised Contract Documents.
- B. During the progress of Work, the Contractor shall verify all field measurements prior to fabrication of building components or equipment and proceed with the fabrication to meet field conditions.
- C. The Contractor shall consult all Contract Documents to determine exact location of all Work and verify spatial relationships of all Work. Any question concerning said location or spatial relationships may be submitted in a manner approved by the Architect.
- D. Special locations for equipment, pipelines, ductwork and other such items of Work, where not dimensioned on plans, shall be determined in consultation with other affected contractors.
- E. The Contractor shall be responsible for the proper fitting of the Work in place.

SECTION 6.03 - SURVEYS

Unless otherwise expressly provided in the Contract, the Owner shall furnish the Contractor all surveys of the property necessary for the Work, but the Contractor shall lay out the Work.

ARTICLE 7 -- INSPECTION AND ACCEPTANCE

SECTION 7.01 – ACCESS TO THE WORK

The Owner, the Owner's Representative, and the architect shall at all times have access to the Work and the Contractor shall provide proper facilities for said access.

SECTION 7.02 – NOTICE FOR TESTING

If the Contract Documents, the Owner's instructions, laws, rules, ordinances or regulations require that any Work be inspected or tested, the Contractor shall give the Architect and/or Owner's representative a minimum of three (3) work days written notice of readiness of the Work for inspection or testing and the date fixed for said inspections or testing.

SECTION 7.03 – REEXAMINATION OF WORK

Reexamination of any part of the Work may be ordered by the Owner, and if so ordered, the Work must be uncovered by the Contractor. If said Work is found to be in accordance with the Contract, the Owner shall pay the cost of reexamination. If said Work is not found to be in accordance with the Contract, the Contractor shall pay the cost of reexamination and replacement.

SECTION 7.04 – INSPECTION OF WORK

All Work, all materials whether or not incorporated in the Work, all processes of manufacture and all methods of construction shall be, at all times and places, subject to the inspection of the Owner or the Owner's Representative or the architect, and the Architect shall be the final judge of the quality and suitability of the Work, materials, processes of manufacture and methods of construction for the purposes for which said Work, materials, processes of manufacture and methods of construction are used. Any Work not approved by the Architect shall be reconstructed, made good, replaced or corrected immediately by the Contractor including all Work of other contractors destroyed or damaged by said removal or replacement. Rejected material shall be removed immediately from the Site. Acceptance of material and workmanship by the Owner shall not relieve the Contractor from the Contractor's obligation to replace all Work which is not in compliance with the Contract.

SECTION 7.05 – DEFECTIVE OR DAMAGED WORK

If, in the opinion of the Owner, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the Work damaged or not performed in accordance with the Contract, the compensation to be paid to the Contractor shall be reduced by an amount which, in the judgment of the Owner, shall be deemed to be equitable.

SECTION 7.06 - TESTING

All materials and equipment used in the Work shall be subject to inspection and testing in accordance with accepted standards to establish conformance with specifications and suitability for uses intended, unless otherwise specified in the Contract. If any Work shall be covered or concealed without the approval or consent of the Architect, said Work shall, if required by the Architect, be uncovered for examination. Any inspection by the Architect or by a testing laboratory on behalf of the Owner does not relieve the Contractor of the responsibility to maintain quality control of materials, equipment and installation to conform to the requirements of the Contract. If any test results are below specified minimums, the Architect may order additional testing. The cost of said additional testing, any additional professional services required, and any other expenses incurred by the Owner as a result of said additional testing shall be at the Contractor's expense. The Owner may deduct such costs from moneys due the Contractor.

SECTION 7.07 - ACCEPTANCE

No previous inspection shall relieve the Contractor of the obligation to perform the Work in accordance with the Contract. No payment, either partial or full, by the Owner to the Contractor shall excuse any failure by the Contractor to comply fully with the Contract Documents. The Contractor shall remedy all defects and deficiencies, paying the cost of any damage to other Work resulting therefrom.

ARTICLE 8 -- CHANGES IN THE WORK

SECTION 8.01 - CHANGES

- A. Without invalidating the Contract, the Owner/Architect may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract consideration being adjusted accordingly. No claims for Extra Work shall be allowed unless such Extra Work is ordered in writing by the Owner/Architect. No changes in the Work shall be made unless such Work is ordered in writing by the Owner/Architect or Owner's Representative. If the time for completion is affected by this change, the revised time for completion shall be included in the change order. The Owner may order the Contractor to perform the Extra Work and proceed under the Dispute Article.

- B. The amount by which the Contract consideration is to be increased or decreased by any change order may be determined by the Owner by one or more of the following methods:
1. By applying the applicable unit price or prices contained in the Contract.
 2. By estimating the fair and reasonable cost of the Extra Work:
 - a. Labor, including all wages, required wage supplements and insurance required by law, paid to employees below the rank of superintendent directly employed at the Site. Wages are the prevailing rate of wages defined in the Contract Documents and supplemental updates.
 - b. Premiums or taxes paid by the Contractor for worker's compensation insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.
 - c. Materials
 - d. Equipment, excluding hand tools, which in the judgment of the Owner, would have been or will be employed in the Work. It is the duty of the Contractor to utilize either rented or self-owned equipment that is of a nature and size appropriate for the Work to be performed. The Owner reserves the right to determine reasonable and appropriate equipment sizing, and at the Owner's discretion, to adjust the costs allowed to reflect a smaller or less elaborate piece of equipment more suitable for performance of the Extra Work.
 3. By determining the actual cost of the Extra Work in the same manner as in Article 8, Section 8.01, Subsection B. 2. except that the actual costs of the Contractor shall be used in lieu of estimated costs.
- C. The Owner shall have the option of determining by which method the Contractor shall proceed with said Extra Work. Wages are the prevailing rate of wages defined in the Contract Documents and supplemental updates. The Contractor shall submit a signed and notarized Labor Rate Worksheet(s) to the Owner to be used to determine hourly rates for various classifications of workers. The Contractor agrees to provide documentation verifying costs and calculations at the Owner's request.

- D. Regardless of the method used by the Owner in determining the value of a change order, the Contractor shall, within the time-frame given by the Owner, submit to the Owner or Owner's Representative a detailed breakdown of the Contractor's estimate of the value of the omitted or Extra Work.
- E. Unless otherwise specifically provided for in a change order, the compensation specified therein for Extra Work includes full payment for the Extra Work covered thereby, and the Contractor waives all rights to any other compensation for said Extra Work, damage or expense.
- F. The Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner shall give the Owner access to all accounts and records relating thereto, including records of subcontractors and material suppliers.
- G. Increased bonding costs for the Work which may result from Owner issued Changes in the Work will be addressed by the Owner at the completion of the Project Work upon submission of satisfactory proof of Contractor's increased cost.
- H. Increased contractual liability insurance premium costs which may result from changes in the Work will be addressed by the Owner at the completion of the Work upon submission of satisfactory proof of Contractor's increased cost.

SECTION 8.02 – OVERHEAD AND PROFIT ALLOWANCE

A. See Example A for changes in the Work performed directly by the Contractor, whether a base cost is arrived at by estimated cost or actual cost method; add to base cost a sum equal to twenty percent. See Exceptions - Paragraphs “D” and “E”.

Example A:

Contractor base cost	\$1,000
20% overhead and profit	<u>200</u>
Total	\$1,200

B. See Example B for changes in the Work performed by a Subcontractor under contract with the Contractor, where estimated or actual cost is Ten Thousand Dollars (\$10,000.00) or less; add to the base cost a sum equal to twenty percent of cost, for the benefit of the Subcontractor. For the benefit of the Contractor; add an additional sum equal to ten percent of the Subcontractor's base cost.

Example B:

Subcontractor base cost	\$1,000
20% Subcontractor overhead and profit	<u>200</u>
Subcontractor Total	\$1,200
10% Contractor overhead and profit on base cost	<u>100</u>
Total	\$1,300

C. See Example C for changes in the Work performed by a Subcontractor, under contract with the Contractor, which exceeds a base cost of Ten Thousand Dollars (\$10,000) in estimated or actual cost; add to the base cost a sum equal to twenty percent of cost for the benefit of the Subcontractor. For the benefit of the Contractor; add an additional sum equal to ten percent of the first Ten Thousand Dollars (\$10,000) of the Subcontractor's base cost, plus five percent of the next Ninety Thousand Dollars (\$90,000) of the Subcontractor's base cost, plus three percent of any sum in excess of One Hundred Thousand Dollars (\$100,000) of the Subcontractor's base cost.

Example C:

Subcontractor base cost	\$200,000
20% Subcontractor overhead and profit	<u>40,000</u>
Subcontractor Total	\$240,000
10% Contractor overhead and profit on first \$10,000 base cost	1,000
5% on next \$90,000 base cost	4,500
3% on base cost over \$100,000	<u>3,000</u>
Total	\$248,500

D. See Example D for overhead and profit on major equipment such as: switchgear, transformers, air handling units, boilers, etc. For extra equipment purchases by the Contractor or Subcontractors which exceeds a base cost of Ten Thousand dollars (\$10,000) in estimated or actual cost; add to the base cost for the benefit of the Contractor a sum equal to ten percent of the first Ten Thousand dollars (\$10,000) of the vendor's base cost plus five percent of the next Ninety Thousand dollars (\$90,000) of the vendor's base cost, plus three percent of any sum in excess of One Hundred Thousand dollars (\$100,000) of the vendor's base cost. If the equipment is supplied by the Subcontractor, the Contractor is entitled to a maximum of ten (10) percent of the first Ten Thousand dollars (\$10,000) of the base cost.

Example D:

Vendor base cost	\$200,000
10% Contractor or Subcontractor overhead and profit on first \$10,000 base cost	1,000
5% on next \$90,000 base cost	4,500
3% on base cost over \$100,000	<u>3,000</u>
Contractor or Subcontractor Total	\$208,500
10% Contractor overhead and profit on first \$10,000 base cost when equipment is supplied by the Subcontractor, no other mark-up allowed	<u>1,000</u>
Total	\$209,500

E. See Example E for overhead and profit on a material only Change Order. For increased material purchases by the Contractor or Subcontractors which exceed a base cost of Ten Thousand dollars (\$10,000) in estimated or actual costs; add to the base cost for the benefit of the Contractor a sum equal to ten percent of the first Ten Thousand dollars (\$10,000) of the supplier's cost plus five percent of the next Ninety Thousand dollars (\$90,000) of the supplier's cost, plus three percent of any sum in excess of One Hundred Thousand dollars (\$100,000) of the supplier's cost. If the material is supplied by the Subcontractor, the Contractor is entitled to a maximum of ten (10) percent of the first Ten Thousand dollars (\$10,000) of the base cost.

Example E:

Material cost (net difference between original contract and revised)	\$200,000
10% Contractor or Subcontractor overhead and profit on first \$10,000 base cost	1,000
5% on next \$90,000 base cost	4,500
3% on base cost over \$100,000	<u>3,000</u>
Contractor or Subcontractor Total	\$208,500
10% Contractor overhead and profit on first \$10,000 base cost when material is supplied by the Subcontractor, no other mark-up allowed	1,000
Total	\$209,500

F. Other than the overhead and profit described in General Conditions Section 7.02A, no further overhead and profit will be allowed for changes to the Work performed by a Subcontractor under Subcontract with the Contractor or for major equipment or material supplier determined to be an affiliate of or controlled by the Contractor. An affiliate is considered any firm or entity in which the Contractor or any individual listed on the Contractor's NYS Vendor Responsibility Questionnaire either owns 5% or more of the shares of, or is one of the five largest shareholders, a director, officer, member, partner or proprietor of said Subcontractor, major equipment or material supplier; a controlled firm is any firm or entity which, in the opinion of the Owner, is controlled by the Contractor or any individual listed on the Contractor's NYS Vendor Responsibility Questionnaire.

1. The Owner, in its sole and exclusive discretion, will determine if a firm or entity is an affiliate of or controlled by the Contractor.

G. No overhead and profit shall be paid for changes in the Work performed by a Subcontractor not under Subcontract with the Contractor. No overhead and profit shall be paid on the premium portion of overtime pay. Where the changes in the Work involve both an increase and a reduction in similar or related Work, the overhead and profit allowance shall be applied only to the cost of the increase that exceeds the cost of the reduction.

SECTION 8.02A – DEDUCT CHANGE ORDER

The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a decrease in the Contract amount shall be as determined by the Owner. The credit shall include the overhead and profit allocable to the deleted or changed Work unless the Owner, in its sole and exclusive discretion, determines otherwise.

SECTION 8.03 – FORM OF CHANGE ORDERS

All Change Orders shall be processed, executed and approved on AIA document G701, which is included herein and made part of the Contract Documents. No alteration to this form shall be acceptable to the Owner and no payment for Extra Work shall be due the Contractor unless it executes a Change Order on said form.

ARTICLE 9 -- TIME OF COMPLETION

SECTION 9.01 – TIME OF COMPLETION

- A. The Work shall be commenced at the time stated in the Owner's written notice to proceed, and shall be completed no later than the time of completion specified in the Contract Documents. Notwithstanding anything to the contrary, a schedule submitted by the Contractor showing a time of completion earlier than that specified in the Contract shall not entitle the Contractor to any additional compensation in the event the earlier time of completion is not realized.
- B. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the time for completion of the Work, as specified in the Contract Documents, is an essential and material condition of the Contract.
- C. The Contractor agrees that the Work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as shall insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the Work described herein is a reasonable time for completion of the same.
- D. If the Contractor shall neglect, fail or refuse to complete the Work within the time specified, or any proper extension thereof granted by the Owner, the Contractor agrees to pay to the Owner for loss of beneficial use of the structure an amount specified in the Contract, not as a penalty, but as liquidated damages, for each and every calendar day that the Contractor is in default. Default shall include abandonment of the Work by the Contractor.
- E. Said amount of liquidated damages is agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages which the Owner would sustain for loss of beneficial use of the structure in the event of delay in completion, and said amount is agreed to be the amount of damages sustained by the Owner and said amount may be retained from time to time by the Owner.

F. It is further agreed that time is of the essence for each and every portion of the Work. In any instance in which additional time is allowed for the completion of any Work, the new time of completion established by said extension shall be of the essence. The Contractor shall not be charged with liquidated damages or any excess cost if the Owner determines that the Contractor is without fault and that the delay in completion of the Work is due:

1. to an unforeseeable cause beyond the control and without the fault of, or negligence of the Contractor, and approved by the Owner, including, but not limited to, acts of God or of public enemy, acts of the Owner, fires, epidemics, quarantine, restrictions, strikes, freight embargoes and unusually severe weather; and
2. to any delays of Subcontractors or suppliers occasioned by any of the causes specified in Subsections 1. of this paragraph.

The Contractor shall, within ten (10) days from the beginning of any such delay, notify the Owner, in writing, of the causes of the delay.

G. The time for completion can be extended only by Change Order approved by the Owner and may be extended for:

1. all of the Work, or
2. only that portion of the Work altered by the Change Order.

H. The foregoing liquidated damages are intended to compensate the Owner only for the loss of beneficial use of the structure. In addition, the Contractor shall be liable to the Owner for whatever actual damages (other than actual loss of beneficial use) the Owner may incur as a result of any actions or inactions of the Contractor or its Subcontractors including, without limitation, interest expense and carrying costs, liabilities to other Contractors working on the project or other third parties, job extension costs and other losses incurred by the Owner. The provisions of this paragraph are for the exclusive use of the Owner, and shall not accrue to other contractors or third parties.

ARTICLE 10 -- TERMINATION OR SUSPENSION

SECTION 10.01 – TERMINATION FOR CAUSE

In the event that any provision of the Contract is violated by the Contractor or by any Subcontractor, the Owner may serve written notice upon the Contractor and upon the Contractor's surety, if any, of the Owner's intention to terminate the Contract; such notice shall contain the reasons for the intention to terminate the Contract upon a date specified by the Owner. If the violation or delay shall not cease or arrangements satisfactory to the Owner shall not be made, the Contract shall terminate upon the date so specified by the Owner. In the event of any such termination, the Owner may take over the Work and prosecute same to completion by Contract or otherwise for the account and at the expense of the Contractor, and the Contractor and Contractor's surety shall be liable to the Owner for all costs occasioned the Owner thereby. In the event of such termination the Owner may take possession of and may utilize such materials, appliances and plant as may be on the Site and necessary or useful in completing the Work.

SECTION 10.02 – TERMINATION FOR CONVENIENCE OF OWNER

The Owner, at any time, may terminate the Contract in whole or in part. Any such termination shall be effected by delivering to the Contractor a notice of termination specifying the extent to which performance of Work under the Contract is terminated and the date upon which the termination becomes effective. Upon receipt of the notice of termination, the Contractor shall act promptly to minimize the expenses resulting from the termination. The Owner shall pay the Contractor for Work of the Contract performed by the Contractor and accepted by the Owner for the period extending from the date of the last approved Application for Payment up to the effective date of the termination, including retainage. In no event shall the Contractor be entitled to compensation in excess of the total consideration of the Contract. . In the event of such termination the Owner may take over the Work and prosecute the Contract to completion and may take possession of and may utilize such materials, appliances, and equipment as may be on the Site and necessary or useful in completing the Work.

SECTION 10.03 – OWNER'S RIGHT TO DO WORK

The Owner may, after notice to the Contractor, without terminating the Contract and without prejudice to any other right or remedy the Owner may have, perform or have performed by others all of the Work or any part thereof and may deduct the cost thereof from any moneys due or to become due the Contractor.

SECTION 10.04 – SUSPENSION OF WORK

- A. The Owner may order the Contractor in writing to suspend, delay or interrupt performance of all or any part of the Work for a reasonable period of time as the Owner may determine. The order shall contain the reason or reasons for issuance which may include but shall not be limited to the following: latent field conditions, substantial program revisions, acquisition of rights of way or real property, financial crisis, labor disputes, civil unrest or acts of God.
- B. Upon receipt of a suspension order, the Contractor shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect such Work from loss or damage.
- C. The Contractor specifically agrees that such suspension, interruption or delay of the performance of the Work pursuant to this Article shall not increase the cost of performance of the Work of this Contract.
- D. Time for completion of the Work may be extended to such time as the Owner determines shall compensate for the time lost by the suspension, interruption or delay, such determination to be set forth in writing.

ARTICLE 11 -- DISPUTES

SECTION 11.01 – CLAIMS FOR EXTRA WORK

- A. If the Contractor claims that any Work which the Contractor has been ordered to perform will be Extra Work, or that any action or omission of the Owner is contrary to the terms and provisions of the Contract and will require the Contractor to perform Extra Work the Contractor shall:
 - 1. Promptly comply with said order.
 - 2. File with the Owner and the architect within fifteen (15) working days after being ordered to perform the Work claimed by the Contractor to be Extra Work or within fifteen (15) working days after commencing performance of the Work, whichever date shall be earlier, or within fifteen (15) working days after the said action or omission on the part of the Owner occurred, a written notice of the basis of the Contractor's claim, including estimated cost, and request for a determination thereof.

3. Proceed diligently, pending and subsequent to the determination of the Owner with respect to any said disputed matter, with the performance of the Work in accordance with all instructions of the Owner.
- B. No claim for Extra Work shall be allowed unless the same was done pursuant to a written order of the Owner. The Contractor's failure to comply with any or all parts of this Article shall be deemed to be:
1. a conclusive and binding determination on the part of the Contractor that said order, Work, action or omission does not involve Extra Work and is not contrary to the terms and provisions of the Contract,
 2. a waiver by the Contractor of all claims for additional compensation or damages as a result of said order, Work, action or omission.
- C. The value of claims for Extra Work, if allowed, shall be determined by the methods described in the Contract.

SECTION 11.02 – CLAIMS FOR DELAY

No claims for increased costs, charges, expenses or damages of any kind shall be made by the Contractor against the Owner for any delays or hindrances from any cause whatsoever; provided that the Owner, in the Owner's discretion, may compensate the Contractor for any said delays by extending the time for completion of the Work as specified in the Contract.

SECTION 11.03 – FINALITY OF DECISIONS

- A. Any decision or determination of the Architect, Owner or the Owner's Representative shall be final, binding and conclusive on the Contractor unless the Contractor shall, within ten (10) working days after said decision, make and deliver to the Owner a verified written statement of the Contractor's contention that said decision is contrary to a provision of the Contract. The Owner shall determine the validity of the Contractor's contention. Pending the decision of the Owner, the Contractor shall proceed in accordance with the original decision.
- B. Wherever it is required in the Contract that an application must be made to the Owner or a determination made by the Owner, the decision of the Owner on said application or the determination of the Owner under the Contract shall be final, conclusive and binding upon the Contractor unless the Contractor, within ten (10) working days after receiving notice of the Owner's decision or determination, files a written statement with the Owner that the Contractor reserves the Contractor's rights in connection with the matters covered by said decision or determination.

ARTICLE 12 -- SUBCONTRACTS

SECTION 12.01 – SUBCONTRACTING

- A. The Contractor may utilize the services of Subcontractors subject to the bid terms and conditions.
- B. The Contractor shall submit to the Owner, in writing, the name of each proposed Subcontractor as required by the Contract or earlier when requested. The Owner reserves the right to disapprove any proposed Subcontractor. Such disapproval shall not result in additional cost to the Owner.
- C. The Contractor shall be fully responsible for the Work, acts and omissions of Subcontractors, and of persons either directly or indirectly employed by Subcontractors.
- D. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the work of Subcontractors.
- E. The Contractor's use of Subcontractors shall not diminish the Contractor's obligation to complete the Work in accordance with the Contract Documents. The Contractor shall control and coordinate the work of Subcontractors.
- F. Nothing contained in the Contract or any subcontract shall create any contractual relationship between Subcontractors and the Owner.

ARTICLE 13 -- CONTRACT COORDINATION AND COOPERATION

SECTION 13.01 – COOPERATION WITH OTHER CONTRACTORS

- A. During the progress of the Work, other contractors may be engaged in performing work. The Contractor shall coordinate the Contractor's Work with the work of said other contractors in such a manner as the Owner may direct.
- B. If the Owner shall determine that the Contractor is failing to coordinate the Work with the work of other contractors as the Owner has directed:
 - 1. the Owner shall have the right to withhold any payments due under the Contract until the Owner's directions are complied with by the Contractor; and
 - 2. the Contractor shall assume the defense and pay on behalf of the Owner any and all claims or judgments or damages and from any costs or damages to which the Owner may be subjected or which the Owner may suffer or incur by reason of the Contractor's failure to promptly comply with the Owner's directions.
- C. If the Contractor notifies the Owner, in writing, that another contractor on the Site is failing to coordinate the work of said contractor with the Work, the Owner shall investigate the charge. If the Owner finds it to be true, the Owner shall promptly issue such directions to the other contractor with respect thereto as the situation may require. The Owner shall not be liable for any damages suffered by the Contractor by reason of the other contractor's failure to promptly comply with the directions so issued by the Owner, or by reason of another contractor's default in performance.
- D. Should the Contractor sustain any damage through any act or omission of any other contractor having a contract with the Owner or through any act or omission of any Subcontractor of said other contractor, the Contractor shall have no claim against the Owner for said damage.
- E. Should any other contractor having or which shall have a contract with the Owner sustain damage through any act or omission of the Contractor or through any act or omission of a Subcontractor, the Contractor shall reimburse said other contractor for all said damages and shall indemnify and hold the Owner harmless from all said claims.

- F. The Owner cannot guarantee the responsibility, efficiency, unimpeded operations or performance of any Contractor. The Contractor acknowledges these conditions and shall bear the risk of all delays including, but not limited to, delays caused by the presence or operations of other contractors and delays attendant upon any construction schedule approved by the Owner and the Owner shall not incur any liability by reason of any delay.

SECTION 13.02 – SEPARATE CONTRACTS

- A. The Owner may award other contracts, work under which may proceed simultaneously with the execution of the Work. The Contractor shall coordinate the Contractor's operations with those of other contractors as directed by the Owner. Cooperation shall be required in the arrangements for access, the storage of material and in the detailed execution of the Work.
- B. The Contractor shall keep informed of the progress and workmanship of other contractors and any Subcontractors and shall notify the Owner in writing immediately of lack of progress or defective workmanship on the part of other contractors or subcontractors, where said delay or defective workmanship may interfere with the Contractor's operations.
- C. Failure of a Contractor to keep so informed and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by the Contractor of said progress and workmanship as being satisfactory for proper coordination with the Work.
- D. Where the Contractor shall perform Work in close proximity to work of other contractors or subcontractors, or where there is evidence that Work of the Contractor may interfere with work of other contractors or subcontractors, the Contractor shall assist in arranging space conditions to make satisfactory adjustment for the performance of said work and the Work. If the Contractor performs work in a manner which causes interference with the work of other contractors or subcontractors, the Contractor shall make changes necessary to correct the condition.

SECTION 13.03 – COORDINATED COMPOSITE DRAWINGS

The Contractor shall prepare coordinated composite scale reproducible drawings and sections, on reproducible paper, clearly showing how the Work of the Contractor is to be performed in relation to work of other contractors or subcontractors.

ARTICLE 14 -- PROTECTION OF RIGHTS, PERSONS AND PROPERTY

SECTION 14.01 – ACCIDENT PREVENTION

The Contractor shall, at all times, take every precaution against injuries to persons or damage to property and for the safety of persons on or about the Site or engaged in the performance of the Work.

SECTION 14.02 – SAFETY PROGRAMS

The Contractor shall be responsible for the initiation, maintenance and supervision of safety precautions and programs in connection with the Work.

SECTION 14.03 – PROTECTION OF WORK AND PROPERTY

- A. The Contractor shall, at all times, guard the Owner's property from injury or loss in connection with the Work. The Contractor shall, at all times, guard and protect the Contractor's Work, and adjacent property. The Contractor shall replace or make good any said loss or injury unless said loss or injury is caused directly by the Owner.
- B. The Contractor shall have full responsibility to protect and maintain all materials and supplies on and off site in proper condition and forthwith repair, replace and make good any damage thereto until construction completion. The Contractor shall maintain an inventory of all materials and supplies for the Project that are delivered to the Site or approved for off-site storage facilities.
- C. The Contractor shall report any loss, theft, burglary, vandalism or damage of materials or installed work to the Owner by phone and fax as soon as it is discovered. If vandalism, theft, or burglary are suspected as the cause of the loss, the Contractor shall notify site security personnel and the municipal police. The Contractor shall also protect the place of the loss until released from protection by the Owner or the Owner's Representative. The Contractor shall insure that no potential evidence relating to the loss is removed from the place of the loss.

SECTION 14.04 – ADJOINING PROPERTY

The Contractor shall protect all adjoining property and shall repair or replace any said property damaged or destroyed during the progress of the Work.

SECTION 14.05 – RISKS ASSUMED BY THE CONTRACTOR

- A. The Contractor solely assumes the following distinct and several risks whether said risks arise from acts or omissions, whether supervisory or otherwise, of the Owner, of any Subcontractor, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the execution of the Work, whether said risks are within or beyond the control of the Contractor and whether said risks involve any legal duty, primary or otherwise, imposed upon the Owner, excepting only risks which arise from faulty designs as shown by the plans and specifications or from the negligence of the Owner or the Owner's members, officers, representatives or employees that caused the loss, damage or injuries hereinafter set forth:
1. The risk of loss or damage, includes direct or indirect damage or loss, of whatever nature to the Work or to any plant, equipment, tools, materials or property furnished, used, installed or received by the Owner, the Construction Manager, the Contractor or any Subcontractor, material or workmen performing services or furnishing materials for the Work. The Contractor shall bear said risk of loss or damage until construction completion or until completion or removal of said plant, equipment, tools, materials or property from the Site and the vicinity thereof, whichever event occurs last. In the event of said loss or damage, the Contractor immediately shall repair, replace or make good any said loss or damage.
 2. The risk of claims, just or unjust, by third persons against the Contractor or the Owner and the Construction Manager 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, whether actually caused by or resulting from the performance of the Work, or out of or in connection with the Contractor's operations or presence at or in the vicinity of the Site. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the construction completion of the Work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained resulting from the Contractor's negligence or alleged negligence which is discovered, appears or is manifested after acceptance by the Owner.

3. The Contractor assumes entire responsibility and liability for any and all damage or injury of any kind or nature whatsoever, including death resulting therefrom, to all persons, whether employees of the Contractor or otherwise, and to all property, caused by, resulting from, arising out of or occurring in connection with the execution of the Work. If any person shall make said claim for any damage or injury, including death resulting therefrom, or any alleged breach of any statutory duty or obligation on the part of the Owner, the Owner's Representative, Construction Manager, servants and employees, the Contractor shall assume the defense and pay on behalf of the Owner, the Owner's Representative, the Construction Manager, servants and employees, any and all loss, expense, damage or injury that the Owner, the Owner's Representative, Construction Manager, servants and employees, may sustain as the result of any claim, provided however, the Contractor shall not be obligated to indemnify the Owner, the Owner's Representative, Construction Manager, servants and employees for their own negligence, if any. The Contractor agrees to assume, and pay on behalf of the Owner and the Owner's Representative, Construction Manager, servants and employees, the defense of any action at law or equity which may be brought against the Owner and the Owner's Representative, Construction Manager, servants and employees. The assumption of defense and liability by the Contractor includes, but is not limited to the amount of any legal fees associated with defending, all costs of investigation, expert evaluation and any other costs including any judgment or interest or penalty that may be entered against the Owner and the Owner's Representative, Construction Manager, servants and employees, in any said action.
 4. The Contractor is advised that the Work required under this Contract may impose certain obligations and requirements mandated by the U.S. Department of Labor Occupational Safety and Health Administration regulations, Title 29 CFR Part 1926.62 Lead Exposure in Construction, relative to the potential exposure to lead by its employees. The Contractor assumes entire responsibility and liability for complying fully in all respects with these regulations.
- B. The Contractor's obligations under this Article shall not be deemed waived, limited or discharged by the enumeration or procurement of any insurance for liability for damages. The Contractor shall notify its insurance carrier within twenty four (24) hours after receiving a notice of loss or damage or claim from the Owner.

The Contractor shall make a claim on its insurer specifically under the provisions of the contractual liability coverages and any other coverages afforded the Owner including those of being an additional insured where applicable.

- C. Neither Final Acceptance of the Work nor making any payment shall release the Contractor from the Contractor's obligations under this Article. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which the Contractor is responsible shall not be deemed to limit the effect of the provisions of this Article or to imply that the Contractor assumes or is responsible for only risks or claims of the type enumerated; and neither the enumeration in this Article nor the enumeration elsewhere in the Contract of particular risks assumed by the Contractor of particular claims for which the Contractor is responsible shall be deemed to limit the risks which the Contractor would assume or the claims for which the Contractor would be responsible in the absence of said enumerations.

Upon the conclusion of any action, proceeding or lawsuit, should a final binding determination of responsibility be made which allocates responsibility to the Owner, or the Owner's members, officers, employees or representatives, the Owner agrees that the obligation to indemnify and hold harmless shall not be applicable to the portion of any uninsured money judgment for which the Owner is responsible, and the Owner agrees to pay the Contractor the percentage of uninsured defense costs which the Contractor incurred based upon an apportionment of the Owner's allocated responsibility.

The Contractor agrees that any claim or costs of the Owner and/or Construction Manager arising from obligations in this Article and/or Article 15 shall be set off or deducted from payments due the Contractor.

ARTICLE 15--INSURANCE AND CONTRACT SECURITY

SECTION 15.01 – INSURANCE PROVIDED BY CONTRACTOR

- A. The Contractor shall procure and maintain all of the insurance required under this Article until all Work, including punch list items, is complete.

The Contractor shall provide insurance as follows:

1. Workers' Compensation and Employers Liability Insurance
 - a. Statutory Workers' Compensation (including occupational disease)

- b. Employers Liability (with a minimum limit of \$1,000,000) New York Statutory Endorsement
- 2. Commercial General Liability (CGL) with a combined single limit for Bodily Injury, Personal Injury and Property Damage of at least \$2,000,000 per occurrence & aggregate. The limit may be provided through a combination of primary and umbrella/excess liability policies.

Coverage shall provide and encompass the following:

- a. Written on an occurrence form;
 - b. Endorsement naming the following as additional insureds: The Fashion Institute of Technology, its auxiliary corporations, the State University of New York, the New York City Department of Education and the City and State of New York, the Construction Manager (if applicable) and other entities specified.
 - c. Policy or policies must be endorsed to be primary as respects the coverage afforded the Additional Insureds and such policy shall be primary to any other insurance maintained by the Owner. Any other insurance maintained by the Owner shall be excess of and shall not contribute with the Contractor's or Subcontractor's insurance, regardless of the "other insurance" clause contained in the Owner's own policy of insurance.
- 3. Commercial Automobile Liability and Property Damage Insurance covering all owned, leased, hired and non-owned vehicles used in connection with the Work with a combined single limit for Bodily Injury and Property Damage of at least \$1,000,000 per occurrence. The limit may be provided through a combination of primary and umbrella/excess liability policies.
- 4. Umbrella/excess liability insurance with limits of:
 - \$5,000,000 per occurrence
 - \$5,000,000 general aggregate

- B. Before commencement of Work, the Contractor shall submit to the Owner for approval two (2) Certificates of Insurance, indicating the Project. Certificates shall provide thirty (30) days' written notice prior to the cancellation, non-renewal, or material modification of any policy. Upon request, the Contractor shall furnish the Owner and the Construction Manager with certified copies of each policy. In addition, where applicable, the Contractor shall provide copies of Certificates of Insurance to the Construction Manager.

Certificates shall be forwarded to Owner in care of:

Sam Li
Purchasing Deputy Director
FIT Purchasing
333 Seventh Avenue, 15th Floor
New York, NY 10001

Certificate(s) of Insurance, when submitted to the Owner, constitutes a warranty by the Contractor that the insurance coverage described is in effect for the policy term shown.

Should the Contractor engage a Subcontractor, the same conditions as are applicable to the Contractor under these insurance requirements shall apply to each Subcontractor of every tier. Proof thereof shall be supplied to the Owner at the address listed above.

- C. All insurance required to be procured and maintained must be procured from insurance companies licensed to do business in the State of New York and rated at least B+ by A.M. Best and Company, or meet such other requirements as are acceptable to the Owner.
- D. Should the Contractor fail to provide or maintain any insurance required by this Contract, the Owner may, after providing written notice to the Contractor, purchase insurance complying with the requirements of this Article and charge back such purchase to the Contractor.
- E. At any time that the coverage provisions and limits on the policies required herein do not meet the provisions and limits set forth above, the Contractor shall immediately cease Work on the Project. The Contractor shall not resume Work on the Project until authorized to do so by the Owner. Any delay or time lost as a result of the Contractor not having insurance required by this Article shall not give rise to a delay claim or any other claim against the Owner or the Client.
- F. Notwithstanding any other provision in this Article, the Owner may require the Contractor to provide, at the expense of the Owner, any other form or limit of insurance necessary to secure the interests of the Owner.
- G. The Contractor shall secure, pay for, and maintain Property Insurance necessary for protection against the loss of owned, borrowed or rented capital equipment and tools, including any tools owned by employees, and any tools or equipment, staging towers, and forms owned, borrowed or rented by the Contractor. The requirement to secure and maintain such insurance is solely for the benefit of the Contractor. Failure of the Contractor to secure such insurance or to maintain adequate levels of coverage shall not render the Additional Insureds or their

agents and employees responsible for any losses; and the Additional Insureds, their agents and employees shall have no such liability.

- H. Neither the procurement nor the maintenance of any type of insurance by the Owner, the Contractor or the Construction Manager shall in any way be construed or deemed to limit, discharge, waive or release the Contractor from any of the obligations or risks accepted by the Contractor or to be a limitation on the nature or extent of said obligations and risks.

SECTION 15.01A – OTHER INSURANCE PROVIDED BY CONTRACTOR

Railroad Protective Liability insurance: If any Work of the Contract is to be performed on or within fifty (50) feet of a railroad property or railroad right of way or will require entrance upon railroad property or right of way or will require assignment of a railroad employee, the Contractor shall provide and maintain a Railroad Protective Liability policy with the policy limits required by the owner(s) of the railroad, including the MTA. For purposes of this paragraph, a subway is a railroad. The policy form shall be ISO-RIMA or an equivalent form approved by the owner(s) of the railroad. The railroad owner(s) shall be the named insured on the policy and the definition of “physical damage to property” shall 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. If the Contractor shall provide a Railroad Protective Liability insurance policy, the Contractor and any Subcontractor performing on or within fifty (50) feet of railroad property or railroad right of way or entering railroad property or right of way or requiring assignment of a railroad employee shall have their CGL insurance policy endorsed to delete the exclusion of coverage for Work within fifty (50) feet of railroad property.

SECTION 15.02 – GENERAL CONFORMANCE

The Contractor and Subcontractors shall not violate, or be permitted to violate, any term or condition of their insurance policies, and shall at all times satisfy the safety requirements of the Owner and of the insurance companies issuing such policies.

SECTION 15.03 – CONTRACT SECURITY

The Contractor shall furnish a surety bond in an amount at least equal to one hundred (100%) of the Contract price as security for the faithful performance of the Contract and also labor and material bond in the form set forth in the Contract in an amount at least equal to one hundred (100%) of the Contract price for the payment of all persons performing labor or providing materials in connection with the Work. The surety on said bond shall be a surety company authorized to do business in the State of New York and shall be rated at least B+ by A.M. Best and Company, or meet such other requirements as are acceptable to the Owner.

SECTION 15.04 – ADDITIONAL OR SUBSTITUTE BOND

If at any time the Owner shall become dissatisfied with any surety or sureties upon the performance bond, or the labor and material payment bond, or if for any other reason said bonds shall cease to be adequate security to the Owner, the Contractor shall, within five (5) days after notice from the Owner to do so, substitute an acceptable bond or bonds in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on said bond or bonds shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond or bonds to the Owner.

SECTION 15.05 – FAILURE TO COMPLY WITH PROVISIONS OF ARTICLE 15

The Contract may, at the sole option of the Owner, be declared void and of no effect if the Contractor fails to comply with the provisions of Article 15.

ARTICLE 16 -- USE OR OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER

SECTION 16.01 – OCCUPANCY PRIOR TO ACCEPTANCE

NOT APPLICABLE

ARTICLE 17 -- PAYMENT

SECTION 17.01 – PROVISION FOR PAYMENT

- A. The Owner may make a partial payment to the Contractor on the basis of an approved estimate of the Work performed during each preceding business month. The Owner shall retain ten percent (10%) of the amount of each said estimate.

The Contractor shall submit a detailed Contract Payment Breakdown prior to the Contractor's first application for payment. The model contract payment breakdown included in the Contract Documents shall establish the minimum level of detail required for the Contractor's payment breakdown. It is understood and the Contractor acknowledges that this model is included as an administrative tool for

the purpose of illustrating a format and minimum level of detail required for the Contract Payment Breakdown and shall not be considered as delineating the Contractor's Scope of Work. The Owner may request further and more detailed Contract Payment Breakdown. Further, the Owner reserves the right to accept only those cost distributions which, in the Owner's opinion, are reasonable, equitably balanced and correspond to the estimated quantities in the Contract Documents.

No payment shall be made by the Owner until the Contract Payment Breakdown is approved by the Owner.

Each monthly partial payment requisition must include Affirmative Action Form AAP 7.0, Contractor's Compliance Report, properly executed, as a condition precedent to requisition payment by the Owner.

- B. In preparing estimates for partial payment, material delivered to the Site and properly stored and secured at the Site, and Material approved to be stored off-site under such conditions as the Owner shall prescribe may be taken into consideration. All costs related to the storage of materials are the sole responsibility of the Contractor.

The Owner will provide an Agreement for Materials Stored Off-Site and specific forms which the Contractor must complete and submit with any request for approval of partial payment for such material. Required information includes but is not limited to: a general description of the material; a detailed list of the materials; a pre-approved storage area; segregation and identification of the material; insurance covering full value against all risks of loss or damage, with non-cancellation provision; immediate replacement agreement in event of loss or damage; agreement to pay the expense of all inspections of the material; ownership provisions; delivery guarantee; project completion statement; bill of sale, releases, and inventory.

- C. Any partial payment made shall not be construed as a waiver of the right of the Owner to require the fulfillment of all the terms of the Contract.
- D. After the Owner has determined Substantial Completion of the Work, the Contractor shall submit to the Owner, for the Owner's approval, a detailed estimate of the value of the known remaining items of Work as set forth by the Owner and a schedule of completion for said items of Work. The Owner shall review that estimate and make the final determination.

The Owner, when all the Work is substantially complete, shall pay to the Contractor the balance due the Contractor pursuant to the Contract, less:

1. two (2) times the value of any remaining items of Work to be completed or corrected; and
2. an amount necessary to satisfy any and all claims, liens or judgments against the Contractor.

As the remaining items of Work are completed and accepted by the Owner, the

Owner shall pay the appropriate amount pursuant to the duly completed and submitted monthly requisitions.

The list of remaining Work items may be expanded to include additional items of corrective or completion Work until final acceptance as certified by the Owner's execution of "Notification of Construction Completion". Appropriate payments may be withheld to cover the value of these items pursuant to this Section.

- E. All Monthly Requisitions submitted by the Contractor shall be on AIA documents G702 and G703. The Contractor shall furnish such affidavits, vouchers and receipts as to delivery and payment for materials as required by the Owner to substantiate each and every payment requested. The Contractor and its Subcontractors will submit with all applications for payment copies of the certified payrolls and certification of payment of wage supplements in a form satisfactory to the Owner. The submission of Contractor and Subcontractor certified payrolls is required at least monthly. No progress payments will be processed without submission by the Contractor of properly executed Affidavit of Payment and Release of Liens (AIA Documents G706 and G706A)."

Section 17.02 - Acceptance of the First Payment Pursuant to Section 17.01 D. of the Contract Constitutes Release

The acceptance by the Contractor of the first payment pursuant to Section 17.01 D. shall be and shall operate as a release to the Owner of all claims by and all liability to the Contractor for all things in connection with the Work and for every act and neglect of the Owner and others relating to or arising out of the Work. No payment, final or otherwise, shall operate to release the Contractor or the Contractor's sureties from any obligations under this Contract or the performance or labor and material payment bonds.

SECTION 17.03 – RELEASE AND CONSENT OF SURETY

Notwithstanding any other provision of the Contract Documents to the contrary, the first payment pursuant to Section 17.01 D. shall not become due until the Contractor submits to the Owner a General Release and a Consent of Surety to said payment pursuant to Section 17.01 D., both in form and content acceptable to the Owner.

SECTION 17.04 - LIENS

Upon the Owner's receipt of a lien, a sum which shall be one and one-half (1 1/2) times the amount stated to be due in the notice of lien shall be deducted from the current payment due the Contractor. This sum shall be withheld until the lien is discharged.

SECTION 17.05 – WITHHOLDING OF PAYMENTS

- A. The Owner may withhold from the Contractor any part of any payment as may, in the judgment of the Owner, be necessary:
 - 1. to assure payment of just claims of any persons supplying labor or materials for the Work;
 - 2. to protect the Owner from loss due to defective Work not remedied; or
 - 3. to protect the Owner, Construction Manager or Consultant from loss due to failure to defend, loss due to injury to persons or damage to the Work or property of other contractors, Subcontractors or others caused by the act or neglect of the Contractor or Subcontractors.
 - 4. to assure payment of fines and penalties which may be imposed on the Contractor pursuant to the provisions of this Contract.
- B. The Owner shall have the right to apply any such amounts so withheld, in such manner as the Owner may deem proper to satisfy said claims, fines and penalties or to secure said protection. Said application of the money shall be deemed payments for the account of the Contractor.
- C. The provisions of this Article 17 are solely for the benefit of the Owner, and any action or non-action hereunder by the Owner shall not give rise to any liability on the part of the Owner.

SECTION 17.06 – OWNER’S RIGHT TO AUDIT AND INSPECTION OF RECORDS

The Contractor shall maintain and keep, for a period of at least six (6) years after the date of final payment, all records and other data relating to the Work, including records of Subcontractors and material suppliers. The Owner or the Owner's Representative shall have the right to inspect and audit all records and other data of the Contractor, Subcontractors and material suppliers relating to the Work.

SECTION 17.07 – FALSE STATEMENTS/INFORMATION

- A. False statements, information or data submitted on or with applications for payment may result in one or more of the following actions:
 - 1. Termination of the Contract for cause;
 - 2. Disapproval of future bids or contracts and sub-contracts;
 - 3. Withholding of final payment on the Contract; and
 - 4. Civil and/or criminal prosecution.

- B. These provisions are solely for the benefit of the Owner, and any action or non-action hereunder by the Owner shall not give rise to any liability on the part of the Owner.

ARTICLE 18 -- TAX EXEMPTION

SECTION 18.01 – TAX EXEMPTION

- A. The Owner is exempt from payment of Federal, State, local taxes and sales and compensating use taxes of the State of New York and of cities and counties on all materials and supplies incorporated into the completed Work. These taxes are not to be included in bids. This exception does not apply to tools, machinery, equipment or other property leased by or to the Contractor or a Subcontractor, or to supplies and materials which, even though they are consumed, are not incorporated into the completed Work, and the Contractor and Subcontractors shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on said leased tools, machinery, equipment or other property and upon all said unincorporated supplies and materials.
- B. The Contractor and Subcontractors shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use said certificates or other documentation as required by law, rule or regulation.

ARTICLE 19 -- GUARANTEE

SECTION 19.01 - GUARANTEE

The Contractor shall in all respects guarantee the Work to the Owner and be responsible for all material, equipment and workmanship of the Work. The Contractor shall forthwith repair, replace or remedy in a manner approved by the Owner, any said material, equipment, workmanship, or other part of the Work found by the Owner to be defective or otherwise faulty and not acceptable to the Owner, which defect or fault appears during the minimum period of one (1) year, or such longer period as may be prescribed by the Contract, from the date of Construction Completion or any part thereof, by the Owner. The Contractor shall also pay for any damage to the Work resulting from said defect or fault.

ARTICLE 20 -- STANDARD PROVISIONS

SECTION 20.01 – PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted therein and the Contract shall read and shall be enforced as though so included therein.

SECTION 20.02 – COMPLIANCE WITH LAWS, RULES AND REGULATIONS

The Contractor shall comply fully with all applicable laws, rules and regulations.

SECTION 20.03 – LAW GOVERNING THE CONTRACT

The Contract shall be governed by the laws of the state of New York.

SECTION 20.04 - ASSIGNMENT

The Contractor shall not assign the Contract in whole or in part without prior written consent of the Owner. If the Contractor assigns all or part of any moneys due or to become due under the Contract, the instrument of assignment shall contain a clause substantially to the effect that the Contractor and assignee agree that the assignee's right in and to any moneys due or to become due to the Contractor shall be subject to all prior claims for services rendered or materials supplied in connection with the performance of the Work.

SECTION 20.05 – NO THIRD PARTY RIGHTS

Nothing in the Contract shall create or shall give to third parties any claim or right of action against the Owner, the Fashion Institute of Technology, the State University of New York, Board of Education of the City of New York, the City or State of New York and the Construction Manager beyond such as may legally exist irrespective of the Contract.

SECTION 20.06 – CONTRACT DEEMED EXECUTORY

The Contractor agrees that the Contract shall be deemed executory to the extent of moneys available and that no liability shall be incurred by the Owner beyond the moneys available therefore.

SECTION 20.07 – ANTI-RIOT PROVISIONS

- A. The Contractor agrees that no part of the Contract funds shall be used to make payments, give assistance, or supply services, in any form, to any individual convicted in any Federal, State or local court of competent jurisdiction for inciting, promoting, or carrying on a riot or engaging in any group activity resulting in material damage to property or injury to persons found to be in violation of Federal, State or local laws designed to protect persons or property.
- B. The Contractor and each Subcontractor shall notify their employees of all rules and

regulations adopted pursuant to Article 129-A of the Education Law of the State of New York. Notices containing the text of the aforementioned rules and regulations shall be posted by the Contractor at the Site.

SECTION 20.08 – DOMESTIC STEEL

The Contractor agrees, that if the value of this contract exceeds \$100,000 all structural steel, reinforcing steel and other major steel items to be incorporated in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.

SECTION 20.09 – PROTECTION OF LIVES AND HEALTH

- A. Each Contractor and Subcontractor shall comply with all applicable provisions of the laws of the State of New York, the United States of America and with all applicable rules and regulations adopted or promulgated by agencies or municipalities of the State of New York or the United States of America. The Contractor's and Subcontractor's attention is specifically called to the applicable rules and regulations, codes and bulletins of the New York State Department of Labor and to the standards imposed under the Federal Occupational Safety and Health Act of 1970, as amended.
- B. The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment of Work under the Contract, and shall immediately notify the Owner in writing of any injury which results in hospitalization or death. The Contractor shall provide to the Owner a copy of Form C-2, Employers Report of Injury/Illness within twenty- four (24) hours of any job related injury on the Owner's job site. Further, a copy of the OSHA Log of Injury and Illness shall also be provided to the Owner for any reporting period in which a job related injury or illness is recorded. The Contractor shall also provide a list of witnesses to the Owner. The list shall include at least the full name, home address, occupation and telephone number of each person who saw or has knowledge of the incident which caused the injury or illness.
- C. The Contractor alone shall be responsible for the safety, efficiency and adequacy of the Contractor's Work, plant, appliances and methods, and for any damage which may result from the failure or the improper construction, maintenance or operation of such Work, plant, appliances and methods.
- D. If, in the performance of the Work, a harmful hazard is created for which appliances or methods of elimination have been approved by regulatory authorities, the Contractor shall install, maintain and operate said appliances or methods.
- E. The Owner may impose a payment penalty on the Contractor for any act of non-compliance with this section. The payment penalty shall not exceed one twentieth

(1/20) of the Contract price or a maximum of One Thousand Dollars (\$1,000.00) for each time the Contractor fails to perform or to provide the information, reports or forms required in this section. This payment penalty is not exclusive, the Owner may avail itself of any other contractual remedy available.

- F. The Owner, Owner's Representative, or Architect may inspect the Site at any time without notice to the Contractor. If the Owner or its representatives find that the Contractor is not complying with Section 20.10 A or any other provision of Section 20.10, the Owner may send written notice to the Contractor to correct any deficiency. Upon re-inspection, if the Owner finds the deficiencies have not been corrected, or in instances where a safety violation (s) must be corrected before Work continues and the Contractor is given three (3) hours to make correction (s) and they are not made, the Owner may let a separate contract to correct any deficiencies and back charge the cost of the separate contract to the Contractor at a premium rate. The Contractor cannot pass these additional charges on to the Owner. No action taken under this section shall be deemed as a basis for any delay claim or any other claim against the Owner by the Contractor.
- G. The Contractor shall preserve and safeguard the scene of an accident involving a ladder, scaffold, mobile machinery, equipment, safety railing or uncovered floor opening or any other incident where the injured person required emergency medical treatment. The Contractor shall "tape off" the area, and not allow any material object or property to be altered, changed, moved or removed from the accident site. In addition to "taping off" the accident site, the Contractor shall telephone and send a facsimile or email to Owner immediately, and post a person at the accident site to protect it. Safeguarding and protecting the accident site shall only be abandoned by the Contractor upon release by the Owner or the Owner's Representative. Failure of the Contractor to comply with the provisions of this paragraph shall be deemed a breach of this Contract. In addition to any other contractual remedies available, the Owner may satisfy the breach by imposing the penalties set out in paragraph 20.10 E or void the entire Contract and retain any or all amounts due the Contractor under this Contract.

SECTION 20.10 – PROHIBITED INTERESTS / ETHICAL CONDUCT

- A. No officer, employee, architect, attorney, engineer, inspector or consultant of or for the Owner authorized on behalf of the Owner to exercise any legislative, executive, administrative, supervisory or other similar functions in connection with the Contract or the Work, shall become personally interested, directly or indirectly, in the Contract, material supply contract, subcontract, insurance contract, or any other contract pertaining to the Work.
- B. The Owner strongly discourages the Contractor from offering or giving anything of value to employees of the Owner under circumstances which may constitute, or even suggest, impropriety. Contractor, or its agents, shall not directly or indirectly offer or give any gift whether in the form of money, service, loan, travel, lodging, meals, refreshments, entertainment, discount, forbearance or promise, or in any other form, to an employee or any representatives of the Owner.
- C. To promote a working relationship with the Owner based on ethical business practices, the Contractor shall:
- furnish all goods, materials and services to the Owner as contractually required and specified,
 - submit complete and accurate reports to the Owner and its representatives as required,
 - not seek, solicit, demand or accept any information, verbal or written, from the Owner or its representatives that provides an unfair advantage over a competitor,
 - not engage in any activity or course of conduct that restricts open and fair competition on Owner-related projects and transactions,
 - not engage in any course of conduct with Owner employees or its representatives that constitutes a conflict of interest, in fact or in appearance, and
 - not offer or give any unlawful gifts or gratuities, or engage in bribery or other criminal activity.
- D. The Owner encourages the Contractor to advance and support ethical business conduct and practices among its directors, officers and employees, through the adoption of corporate ethics awareness training programs and written codes of conduct.
- E. Although the Contractor may employ relatives of Owner's employees, the Owner must be made aware of such circumstances as soon as possible, in writing, to ensure a conflict of interest situation does not arise. The Owner reserves the right to request that the Contractor modify the work assignment of a relative of an Owner's

employee or representative where a conflict of interest, or the appearance thereof, is deemed to exist.

- F. The Contractor may hire former employees of the Owner. However, as a general rule, former employees of the Owner may neither appear nor practice before the Owner, nor receive compensation for services rendered on a matter before the Owner, for a period of *two (2) years* following their separation from service with the Owner. In addition, former employees of the Owner are subject to a “*lifetime bar*” from appearing before the Owner or receiving compensation for services regarding any transaction in which they personally participated or which was under their active consideration during their tenure with the Owner.
- G. The Contractor agrees to notify Stephen Tuttle, Esq., the Owner’s attorney, at (212) 217-4030 of any activity by an employee of the Owner that is inconsistent with the contents of this Section.
- H. Any violation of these provisions shall justify termination of this Contract and may result in Owner’s rejection of the Contractor’s bids or proposals for future contracts.

SECTION 20.11 – STATE AND FEDERAL LABOR LAW PROVISIONS

- A. Although the Work of this Contract is not public work, the Owner intends that all applicable provisions of the Labor Law of the State of New York shall be carried out in the performance of the Work.
- B. The Contractor specifically agrees to comply with Labor Law, Sections 220 and 220-d as amended, that:
 - 1. no laborer, workman or mechanic, in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or any part of the Work contemplated by the Contract shall be permitted or required to work more than eight (8) hours in any one (1) calendar day and more than five (5) days in any one week, except in the extraordinary emergencies set forth in the Labor Law;
 - 2. the wages paid for a legal day's work shall be not less than the prevailing rate of wages as defined by law;
 - 3. the minimum hourly rate of wage to be paid and supplement provided shall be not less than that stated in the Contract and as shall be designated by the Industrial Commissioner of the State of New York; and
 - 4. the Contractor and every Subcontractor shall post in a prominent and accessible place on the Site, a legible statement of all minimum wage rates and supplements to be paid or provided for the various classes of laborers and mechanics to be engaged in the Work and all deductions, if any,

required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

- C. The minimum wage rates, if any, herein specified for apprentices shall apply only to persons working with the tools of the trade which such persons are learning under the direct supervision of journeyman mechanics. Except as otherwise required by law, the number of apprentices in each trade or occupation employed by the Contractor or any Subcontractor shall not exceed the number permitted by the applicable standards of the New York State Department of Labor, or, in the absence of such standards, the number permitted under the usual practice prevailing between the unions and the employers' association of the respective trades or occupations.
- D. All employees of the Contractor and each Subcontractor shall be paid in accordance with the provisions of the Labor Law. Certified payroll copies shall be provided to the Owner as specified in these General Conditions and otherwise upon request.
- E. The Contractor agrees that, in case of underpayment of wages to any worker engaged in the Work by the Contractor or any Subcontractor, the Owner shall withhold from the Contractor out of payments due an amount sufficient to pay such worker the difference between the wages required to be paid under the Contract and the wages actually paid such worker for the total number of hours worked, and that the Owner may disburse such amount so withheld by the Owner for and on account of the Contractor to the employee to whom such amount is due. The Contractor further agrees that the amount to be withheld pursuant to this paragraph may be in addition to the percentages to be retained by the Owner pursuant to other provisions of the Contract.
- F. Pursuant to subdivision 3 of section 220 and section 220-d of the Labor Law the Contract shall be forfeited and no sum paid for any Work done thereunder upon a Contractor's or Subcontractor's second conviction for willfully paying or providing less than:
 - 1. the stipulated wage scale or supplement as established by the fiscal officer, or
 - 2. less than the stipulated minimum hourly wage scale as designated by the Industrial Commissioner.
- G. Pursuant Labor Law, Section 220-e, the Contractor specifically agrees:
 - 1. That in the hiring of employees for the performance of Work under the Contract or any subcontract hereunder, or for the manufacture, sale or distribution of materials, equipment or supplies hereunder, but limited to operation performed within the territorial limits of the State of New York, no Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, 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;

2. That no Contractor, Subcontractor, nor any person on behalf of such Contractor or Subcontractor shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under the Contract on account of race, creed, color, disability, sex or national origin;
3. That there may be deducted from the amount payable to the Contractor, by the Owner under the Contract, a penalty of fifty dollars (\$50.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the terms of the Contract; and
4. That the Contract may be canceled or terminated by the Owner and all moneys due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this section of the Contract, or when one final determination involves the falsification of payroll records or the kickback of wages and/or supplements.

H. The Contractor specifically agrees:

1. That the Contractor shall certify its payrolls and keep these certified records on site and available, and provide copies to the Owner upon request.
2. That the Contractor shall provide each worker with a written notice informing the worker of the prevailing wage requirements for the job. The notice shall contain a simple statement or declaration for the worker's

SECTION 20.12 - NONDISCRIMINATION

During the performance of the Work, the Contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, religion/creed, color, sex, sexual orientation, gender, gender identity/expression, national origin, age, disability, marital status, or any other protected category.
- B. If directed to do so by the Commissioner of Human Rights, the Contractor will send to each labor union or representative of workers with which the Contractor has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commissioner of Human Rights, advising such labor union or representative of the Contractor's agreement under clauses A through G (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Owner as part of the bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish a written statement that such labor union or representative will not discriminate because of race, creed, color, sex, national origin, age, disability or marital status, and that such labor union or representative will cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these nondiscrimination clauses and that it consents and agrees that recruitment, employment and the terms and conditions of employment under this Contract shall be in accordance with the purposes and provisions of these nondiscrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Commissioner of Human Rights of such failure or refusal.
- C. If directed to do so by the Commissioner of Human Rights, the Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commissioner of Human Rights setting forth the substance of the provisions of clauses A and B and such provisions of the State's laws against discrimination as the State Commissioner of Human Rights shall determine.
- D. The Contractor shall state, in all solicitations or advertisement for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, sex, national origin, age, disability or marital status.
- E. The Contractor shall comply with the provisions of Section 290-299 of the Executive Law and with the Civil Rights Law, will furnish all information and reports deemed necessary by the State Commissioner of Human Rights under these nondiscriminatory clauses and such sections of the Executive Law, and will permit access to the Contractor's books, records and accounts by the State Commissioner for the purposes of investigation to ascertain compliance with these nondiscrimination clauses and such sections of the Executive Law and Civil Rights Law.

- F. This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Owner upon the basis of a finding made by the State Commissioner of Human Rights that the Contractor has not complied with these nondiscrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State or a public authority or agency of the State, until the Contractor satisfies the State Commissioner of Human Rights that the Contractor has established and is carrying out a program in conformity with the provisions of these nondiscrimination clauses. Such finding shall be made by the State Commissioner of Human Rights after conciliation efforts by the Commissioner have failed to achieve compliance with these nondiscrimination clauses and after a verified complaint has been filed with the Commissioner, notice thereof has been given to the Contractor and an opportunity has been afforded the Contractor to be heard publicly in accordance with the Executive Law. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.
- G. The Contractor shall include the provisions of clauses A through F above in every subcontractor purchase order in such a manner that such provisions will be binding upon each Subcontractor or vendor as to operation to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such Subcontract or purchase order as the State Commissioner of Human Rights or the Owner may direct, including sanctions or remedies for noncompliance. If the Contractor becomes involved in or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the State Commissioner of Human Rights or the Owner, the Contractor shall promptly so notify the Attorney General, requesting the Attorney General to intervene and to protect the interests of the State of New York.

SECTION 20.13 – LIMITATION ON ACTIONS

No action or proceeding shall lie in favor of or shall be maintained by the Contractor against the Owner unless such action shall be commenced within six (6) months after receipt by the Owner of the Contractor's final requisition or, if the Contract is terminated by the Owner, unless such action is commenced within six (6) months after the date of such termination.

SECTION 20.14 – WAIVER OF REMEDIES

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

SECTION 20.15 – WAIVER OF CERTAIN CAUSES OF ACTION

No action or proceeding shall lie or shall be maintained by the Contractor, nor anyone claiming under or through the Contractor, against the Owner upon any claim arising out of or based upon the Contract, relating to the giving of notices or information.

SECTION 20.16 – CONTRACTOR RELATIONSHIP

The relationship created by the Contract between the Owner and the Contractor is one of an independent contractor and it is no way to be construed as creating an agency relationship between the Owner and the Contractor nor is it to be construed as, in any way or under any circumstances, creating or appointing the Contractor as an agent of the Owner for any purpose whatsoever.

SECTION 20.17 – FAILURE TO COMPLY WITH THIS ARTICLE

The Contract shall be void and of no effect unless the Contractor complies with the provisions of this Article 20.

SECTION 20.18 – YEAR 2000 WARRANTY

SECTION DELETED

SECTION 20.19 – FALSE RECORDS/KICKBACKS

The Contractor agrees that this Contract may be canceled or terminated for cause by the Owner and all moneys due or to become due hereunder may be forfeited upon the Owner's determination that the Contractor has submitted false records to the Owner and/or that the Contractor has participated in the kickback of wages. Said determination by the Owner must first allow the Contractor an opportunity to show why its Contract should not be canceled or terminated for cause for said actions.

ARTICLE 21- COOPERATION WITH INVESTIGATIONS

The Contractor agrees to cooperate fully and faithfully with any investigation, audit or inquiry conducted by the Owner or any other duly authorized representative of the Owner ("Representative").

The Contractor shall grant the Owner or the Representative the right to examine all books, records, files, accounts, computer records, documents and correspondence, including electronically-stored information, in the possession or control of the Contractor, its subsidiaries and affiliated companies and any other company directly or indirectly controlled by the Contractor, relating to the Contract. These shall include, but not be limited to: Subcontracts; bid files; payroll and personnel records; cancelled checks; correspondence; memoranda; reports; audits; vendor qualification records; original estimate files; change order/amendment estimate files; detailed worksheets; Subcontractor, consultant and supplier proposals for both successful and unsuccessful bids; back-charge logs; any records detailing cash, trade, or volume discounts earned; insurance proceeds, rebates or dividends received; payroll and personnel records; tax returns, and the supporting documentation for the aforesaid books and records.

At the Owner's or the Representative's request, said materials shall be provided in a computer readable format, where available. At the request of the Owner or the Representative, the Contractor shall execute such documents, if any, as are necessary to give the Owner or the Representative access to Contract-related books, documents or records which are, in whole or part, under control of the Contractor but not currently in the Contractor's physical possession. The Contractor shall not enter into any agreement with a Subcontractor, consultant or supplier, in connection with the Contract, that does not contain a right to audit clause in favor of the Owner. The Contractor shall assist the Owner or the Representative in obtaining access to past and present Subcontractor, consultant and supplier amendment/change order files (including detailed documentation covering negotiated settlements), accounts, computer records, documents, correspondence, and any other books and records in the possession of Subcontractors, consultants and suppliers pertaining to the Contract, and, if appropriate, enforce the right-to-audit provisions of such agreements.

The Contractor shall assist the Owner or the Representative in obtaining access to, interviews with, and information from all former and current persons employed and/or retained by the Contractor, for purposes of the Contract.

The Contractor shall require each Subcontractor to include in all agreements that the

Subcontractor may hereinafter enter into with any and all Subcontractors, consultants and suppliers, in connection with the Contract, a right-to-audit clause in favor of the Owner conferring rights and powers of the type outlined in this section. The Contractor shall not enter into any Subcontract with a Subcontractor in connection with the Contract that does not contain such a provision.

The Contractor shall not make any payments to a Subcontractor, consultant or supplier from whom the Contractor has failed to obtain and supply to the Owner or the Representative complete, accurate and truthful information in compliance with a request from the Owner or the Representative to the Contractor.

Any violation of the provisions of this Article shall justify termination of this Contract and may result in the Owner's rejection of the Contractor's bids or proposals for future contracts.

SECTION VI.

LABOR & MATERIAL PAYMENT BOND

LABOR & MATERIAL PAYMENT BOND

KNOW ALL BY THESE PRESENTS:

That _____
(Here insert the name and address or legal title of the Contractor)

as Principal, hereinafter called Principal, and _____

(Here insert the legal title of Surety)

(Address)

as Surety, hereinafter called Surety, are held and firmly bound unto The Fashion Institute of Technology, as applicable, as Obligee, hereinafter called Owner, for the use and benefit of the claimants as hereinbelow defined, in the amount of _____

_____ and /100 Dollars (\$_____)

WHEREAS, Principal has by written agreement dated _____

entered into a Contract with Owner for _____

in accordance with the Contract Documents and any changes thereto, which are made a part hereof, and are hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise such obligation shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct Contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.
2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full

before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:
 - a. Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two (2) of the following: 1) the Principal, 2) the Owner, or 3) the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, or Surety, at any place where an office is regularly maintained by said Principal, Owner, or Surety for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer.
 - b. After the expiration of one (1) year following the date on which Principal ceased work of said Contract, however, if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - c. Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.
4. The penal sum of this Bond is in addition to any other Bond furnished by the Contractor and in no way shall be impaired or affected by any other Bond.
5. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of Mechanics' Liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this Bond.

Signed this _____ day of _____ 20__.

IN THE PRESENCE OF:

(Principal)

(Surety)

(Signature)

(Signature)

(Print Name and Title)

(Print Name and Title)

(Address)

(Address)

(City, State, Zip)

(City, State, Zip)

Telephone (____) _____

Fax No. _____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

STATE OF _____) ss:

COUNTY OF _____)

On the _____ day of _____ in the year 20__, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____, that (s)he is the _____ of _____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

STATE OF _____)ss:

COUNTY OF _____)

On the _____ day of _____ in the year 20____, before me personally came

_____, to me known and known to me to be a member of the firm _____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purpose mentioned therein.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF _____) ss:

COUNTY OF _____)

On the _____ day of _____ in the year 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 (s)he duly acknowledged that (s)he executed the same.

Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF NEW YORK)

COUNTY OF _____) ss:

On the _____ day of _____ in the year 20____, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____, that (s)he is the _____ of _____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

Notary Public

SECTION VII.
PERFORMANCE BOND

PERFORMANCE BOND

KNOW ALL BY THESE PRESENTS:

That _____
(Here insert the name and address or legal title of the Contractor)

as Principal, hereinafter called Principal, and _____

(Here insert the legal title of Surety)

(Address)

as Surety, hereinafter called Surety, are held and firmly bound unto The Fashion Institute of Technology, as applicable, as Obligee, hereinafter called Owner, in the amount of _____
_____ and _____ /100 Dollars (\$ _____) for
the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators,
successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, CONTRACTOR has by written agreement dated _____

entered into a Contract with Owner for _____

in accordance with the Contract Documents and any changes thereto, which are made a part
hereof, and are hereinafter referred to as the Contract.

1. If the Contractor performs the Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 2.1.
2. If there is no Owner default, the Surety's obligation under this Bond shall arise after:
 - 2.1 The Owner has notified the Contractor, the Surety at its address described in Paragraph 8. below that the Owner is considering declaring a Contractor in default.
 - 2.2 The Owner has declared a Contractor in default and formally terminated the Contractor's right to complete the Contract.

- 2.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Contract or to a Contractor selected to perform the Contract in accordance with the terms of the Contract with the Owner.
3. When the Owner has satisfied the conditions of Paragraph 2 herein., the Surety shall, at the Owner's option, promptly and at the Surety's expense take on the following actions:
 - 3.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Contract; or
 - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Owner and the Contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified Surety equivalent to the bonds issued on the Contract, and pay to the Owner the amount of damages as described in Paragraph 5. in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor default.
4. If the Surety does not proceed with reasonable promptness, the Surety shall be deemed to be in default on this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.
5. After the Owner has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under Subparagraph 3.1, 3.2, or 3.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:
 - 5.1 The responsibilities of the Contractor for correction of defective work and completion of the Contract;
 - 5.2 Additional legal, design, professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 3.; and
 - 5.3 Liquidated Damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor. 3
6. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators or successors.
7. The Surety hereby waives notice of any change, including changes of time, to the Contract

or to related subcontracts, purchase orders, and other obligations.

8. Notice of the Surety and the Contractor shall be mailed or delivered to the address shown on the signature page. Notice to the Owner shall be mailed or delivered to the address shown in the preamble.
9. Definitions:
 - 9.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
 - 9.2 Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 9.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
 - 9.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

The penal sum of this Bond is in addition to any other Bond furnished by the Contractor and in no way shall be impaired or affected by any other Bond.

Any suit under this Bond must be instituted before the expiration of two (2) years from the date on which Final Payment is made under this Contract.

Signed this _____ day of _____ 20__.

IN THE PRESENCE OF:

(Principal)

(Surety)

(Signature)

(Signature)

(Print Name and Title)

(Print Name and Title)

(Address)

(Address)

(City, State, Zip)

(City, State, Zip)

Telephone (____) _____

Fax No. _____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

STATE OF _____) ss:

COUNTY OF _____)

On the _____ day of _____ in the year 20__, before me personally came

_____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____, that (s)he is the _____ of _____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

STATE OF _____)ss:

COUNTY OF _____)

On the _____ day of _____ in the year 20__, before me personally came

_____, to me known and known to me to be a member of the firm _____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purpose mentioned therein.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF _____) ss:

COUNTY OF _____)

On the _____ day of _____ in the year 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 (s)he duly acknowledged that (s)he executed the same.

Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF NEW YORK)

COUNTY OF _____) ss:

On the _____ day of _____ in the year 20__, before me personally came

_____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____, that (s)he is the _____ of _____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

Notary Public

SECTION VIII.
FORM OF BID

FORM OF BID

(Contract for Total of All Materials and Labor)

The Fashion Institute of Technology
(Owner)

For:

The Fashion Institute of Technology is requesting Bids for the Work described in Section II. Bid Terms and Conditions, II. Summary of Scope of Work and as shown and described on the drawings and specifications provided with this document at the Fashion Institute of Technology's "_____ " located on 27th street campus. To be known from this point forward as the "_____ "

Pursuant to and in compliance with the Owner's advertisement for bids dated_____, 20__ and the Contract Documents relating hereto, the undersigned hereby offers to provide all plant, labor, materials, supplies, equipment, and other facilities and things necessary or proper for or incidental to, the General Contracting and Electrical Work as required by, and in strict accordance with, the applicable provisions of the Contract Documents, as defined in the General Conditions, including changes thereto, and all of the addenda issued by the Owner and sent to the undersigned by facsimile transmission or delivered to the bidder prior to the date of opening of bids, whether received by the undersigned or not, for the total sum of

_____ Dollars
(\$_____).

The Bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

If written notice of the acceptance of the Bid is sent to the undersigned by certified or registered mail or by facsimile transmission or delivered to the undersigned within ninety (90) days after the date of opening of the bids, or any time thereafter before the Bid is withdrawn, the undersigned shall, within eight (8) days after the date of such mailing, facsimile transmission, or delivery of such notice, execute and deliver a Contract in the Form of Contract included in the Contract Documents.

The undersigned hereby designates as the undersigned's office to which such notice of acceptance may be mailed, transmitted, or delivered as _____

SECTION IX.
NON-COLLUSIVE
BIDDING
CERTIFICATION

Non-collusive Bidding Certification

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 its knowledge and belief:

1. The prices in the 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;
2. Unless otherwise required by law, the prices which have been quoted in the 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
3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.

Firm Name _____

Address _____

By _____
(Signature and Title)

Dated: _____

Telephone (____) _____ Fax No. (____) _____

(Taxpayer ID or Social Security Number)

ACKNOWLEDGEMENT OF BIDDER, IF A CORPORATION

STATE OF NEW YORK)
COUNTY OF _____) ss:

On the ____ day of _____, 20__, before me personally came _____
to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____
_____, that (s)he is the _____ of _____
_____, the corporation described in and which executed the above instrument;
and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

Notary Public

ACKNOWLEDGEMENT OF BIDDER, IF A PARTNERSHIP

STATE OF NEW YORK)
COUNTY OF _____) ss:

On the ____ day of _____, 20__, before me personally came _____
to me known and known to me to be a member of the firm _____
_____, described in and who executed the foregoing instrument, and (s)he duly
acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and
purposes mentioned therein.

Notary Public

ACKNOWLEDGEMENT OF BIDDER, IF AN INDIVIDUAL

STATE OF NEW YORK)
COUNTY OF _____) ss:

On the ____ 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 (s)he duly acknowledged that (s)he executed the same.

Notary Public

SECTION X:

SUBSTITUTION FORM REQUEST

FASHION INSTITUTE OF TECHNOLOGY

SUBSTITUTION REQUEST FORM

1.1 CONDITIONS OF SUBSTITUTIONS

- A. Substitution indicated on this Form is a proposed substitute to requirements indicated in the Contract Documents. Substitution listed has not been included in an Addendum. Submit one Form for each proposed substitution.
- B. For each proposed Substitution, state difference in price or "No Change" where Substitution is offered.
- C. Attach complete technical data, specifications, and description of substitutions.
- D. Architect reserves the right to accept or reject any or all proposed substitutions.

1.2 SUBSTITUTION REQUEST

The following information is hereby submitted for a substitution to the specified item.

Specification Section and Title: _____

Paragraph _____ Page _____ Specified Item _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No: _____

Price Difference: _____ or No Change _____

The Undersigned certifies:

- A. Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- B. Same warranty will be furnished for proposed substitution as for specified product.
- C. Same maintenance service and source of replacement parts, as applicable is available.
- D. Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- E. Proposed substitution does not affect dimensions and functional clearances.
- F. Payment will be made for changes to the building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____ FAX: _____

ARCHITECT'S REVIEW AND ACTION

- ☐ Substitution Approved – Make submittals in accordance with General Requirements
- ☐ Substitution Approved As Noted – Make submittals in accordance with General Requirements.
- ☐ Substitution Rejected – Use specified materials.
- ☐ Substitution Request Received Too Late. Use specified materials.

Signed by: _____

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests
☐ Reports ☐ Other _____

SUBSTITUTION REQUEST FORM

SECTION XI.
CONTRACT

TO BE SIGNED ONLY UPON AWARD

CONTRACT

This Agreement made as of the _____ day of _____ 20____, by and between the _____, hereinafter referred to as the "**OWNER**" and _____ hereinafter referred to as the "Contractor", for Work at _____

WITNESSETH: That the **OWNER** and the Contractor for the consideration named agree as follows:

1. The Contractor shall Provide and shall perform all Work of every kind or nature whatsoever required and all other things necessary to complete in a proper and workmanlike manner the _____
_____ in strict accordance with the Contract Documents as defined in the General Conditions (and of which a listing of specifications and drawings are attached hereto) and in strict accordance with such changes as are ordered and approved pursuant to the Contract, and shall perform all other obligations imposed on such Contractor by the Contract.
2. The Contractor agrees to perform all Work and labor required, necessary, proper for, or incidental to the Work, and to Furnish all supplies and materials required, necessary, proper for, or incidental to the Work for the total sum of _____ and 00/100 Dollars (\$ _____ .00), which sum shall be deemed to be in full consideration for the performance by the Contractor of all the duties and obligations of such Contractor under the Contract.
3. The Contractor shall commence Work on the Contract at a time to be specified in a written notice to proceed issued by the OWNER and complete the project no later than _____.

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

Fashion Institute of Technology

Sherry Brabham, VP of Finance

(Name of Contractor)

By _____
(Signature)

(Print Name and Title)

ACKNOWLEDGEMENT OF CONTRACTOR, IF A CORPORATION

STATE OF _____)
COUNTY OF _____) ss:

On the _____ day of _____ in the year 20____, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____, that (s)he is the _____ of _____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

Notary Public

ACKNOWLEDGEMENT OF CONTRACTOR, IF A PARTNERSHIP

STATE OF _____)
COUNTY OF _____) ss:

On the _____ day of _____ in the year 20__, before me personally came _____ to me known and known to me to be a member of the firm _____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purpose mentioned therein.

Notary Public

ACKNOWLEDGEMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF _____)
COUNTY OF _____) ss:

On the _____ day of _____ in the year 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 (s)he duly acknowledged that (s)he executed the same.

Notary Public

SECTION XII.
AFFIRMATIVE ACTION FORM

MONTHLY CONTRACTOR'S COMPLIANCE REPORT FORM AAP 7.0

INSTRUCTION SHEET

ALL PAYMENT REQUISITION, CONTRACTOR AND PROJECT INFORMATION ON THE TOP PORTION OF THE FORM MUST BE COMOPLETELY FILLED OUT. PLEASE NOTE:

False statements, information or data submitted on or with application for payment may result in one or more of the following actions: Termination of Contract for cause; Disapproval of future bids, or contracts or subcontracts; Withholding of final payments on the contract; and Civil and/or criminal prosecution.

PART B- PAYMENTS TO SUBCONTRACTORS AND SUPPLIERS

- 1) ALL FIRMS THAT YOU ARE UTILIZING ON THE JOB MUST BE LISTED EACH TIME **REGARDLESS** IF THEY ARE SCHEDULED TO RECEIVE PAYMENTS OUT OF THE PROCEEDS OF THE REQUISITION FOR PAYMENT.
- 2) All relevant information for each subcontractor and/or supplier must be filled in. This includes firm's complete name, address, phone number and Federal ID #. In addition, if the firm is a **NYS CERTIFIED MBEIWBE**, please indicate as such in the appropriate box.

AS A REMINDER, ONLY THOSE FIRMS THAT HAVE NYS CERTIFICATION BY THE EMPIRE STATE DEVELOPMENT CORPORATION CAN BE COUNTED TOWARDS THE MBE/WBE GOAL ACHIEVEMENT FOR THE PROJECT.
- 3) The percentage of the job or purchases completed must be filled in and in addition, please indicate the number of change orders issued on any subcontract agreement or the number of purchase orders issued to date if purchasing supplies.
- 4) A description of the work being performed by a subcontractor or the type of supplies being purchased must be filled in.

DEFINITIONS

INTENDED PAYMENT: This is the amount of money that you intend to pay to each firm with the money that you will receive from the accompanying requisition. **This is not** the amount that you intend to pay over the life of the contract.

AMOUNT PAID TO DATE: This is the amount of money that has **ACTUALLY** been paid to date from previous requisitions submitted. It does not include the amount that you intend to pay from this requisition. THIS AMOUNT WILL BE VERIFIED BY OUR OFFICE PRIOR TO CLOSE OUT OF THE JOB BY THE RECEIPT OF COPIES OF CANCELED CHECKS OR PAID INVOICES.

CURRENT VALUE OF SUBCONTRACT: This is the total value to date of any subcontract agreement that has been issued to the firm by your company. It should be inclusive of any change orders issued to the original contract. **NOTE:** THIS LINE IS FOR SUBCONTRACTOR INFORMATION ONLY. IF THE FIRM LISTED IS A SUPPLIER THAT YOU ARE PURCHASING SUPPLIES OR MATERIAL FROM, LEAVE BLANK AND GO TO THE NEXT LINE.

TOTAL VALUE OF ALL PURCHASE ORDERS: This is the total amount of **all** purchase orders that will be issued to the firm for the entire job. The number of purchase orders issued to date should be reflected in the area indicated to the left. **NOTE:** THIS LINE IS FOR SUPPLIER INFORMATION ONLY. IF THE FIRM IS A SUBCONTRACTOR, LEAVE THIS AREA BLANK. A SUBCONTRACTOR AGREEMENT SHOULD BE ISSUED WHICH WOULD BE REFLECTED ON THE PREVIOUS LINE.

The current form that you should be utilizing is form: AAP 7.0 Revised 1/9/08. This form must be included with each payment requisition submitted or the payment will not be processed.

If the form is not filled out according to the above instructions, your next payment requisition may be held until corrections are made. In addition, each report submitted must have an original signature and date.

MONTHLY CONTRACTOR'S COMPLIANCE REPORT

Page 1 of

Payment Requisition Date _____
Payment Requisition Amount \$. _____
FIT Contract Number _____

CONTRACTOR INFORMATION

Name _____ Federal ID No. _____

Address _____

Contact Person _____ Telephone Number _____

PROJECT INFORMATION

Institution _____ City and Zip Code _____

Work Description _____

Part B – Payments to Subcontractors and Suppliers: Provide name, address and telephone number of **ALL** subcontractors to which you have awarded a subcontract or suppliers to which you have issued a purchase order. Place **X** in check box to indicate whether they are a New York State certified MBE or WBE or Other. In addition, for each firm listed below you must also include: the firms federal identification number; amount of intended payment to be made from proceeds of the accompanying requisition; percent complete, amount paid to date; the number of change orders or purchase orders; current value of subcontract (including change orders) or cumulative value of purchase orders; and a brief description of the work or service. All subcontractors or suppliers with whom you have an agreement should be listed below, even if they are not scheduled to receive a payment out of the proceeds of the attached requisition for payment. For further details, see Instruction Sheet

Firm _____ ☐ MBE ☐ WBE ☐ Other Fed. ID# _____

Address _____ Phone# _____ Intended Payment\$. _____

Address _____ Percent Complete _____ Amount Paid to Date\$ _____

No. of Change Orders. _____ Current Value of Subcontract \$ _____

No. of Purchase Orders Issued _____ Total Value of Purchase Orders \$ _____

Work Description _____

Firm _____ ☐ MBE ☐ WBE ☐ Other Fed. ID# _____

Address _____ Phone # _____ Intended Payment\$. _____

Address _____ Percent Complete _____ Amount Paid to Date\$ _____

No. of Change Orders. _____ Current Value of Subcontract \$ _____

No. of Purchase Orders Issued _____ Total Value of Purchase Orders \$ _____

Work Description _____

False statements, information or data submitted on or with application for payment may result in one or more of the following actions: Termination of Contract for cause; Disapproval of future bids, or contracts or subcontracts; Withholding of final payments on the contract; and Civil and/or criminal prosecution.

Name of Principal or Officer (Type or Print)

Title of Principal or Officer (Type or Print)

Signature of Principal or Officer

Date

SECTION XIII.
CHANGE ORDER FORM

CHANGE ORDER

TO:

Contractor: _____

Contract No. _____

Street: _____

Contract Date: _____

City, State, Zip: _____

Original Contract Amount: \$ _____

Phone No. _____

Total Approved Change Orders: _____

Current Contract Amount: \$ _____

You are hereby directed to perform all labor and to provide all materials necessary to carry out the Work described below:

Full consideration for this change order shall be on **INCREASE/DECREASE** of the original contract amount by:

_____ Dollars.

Labor = _____

Materials = _____

INCREASE/DECREASE of the original schedule by days. In accepting and executing this change order, the Contractor, its heirs, executors, administrators, successors, and assigns hereby release and forever discharge the Owner, its successors, and assigns from any and all actions, causes of action, claims and demands whatsoever in law or in equity which the Contractor ever had, now has, or may have against the Owner in any way arising out of this change.

Recommended by:
CONSTRUCTION MANAGER OR ARCHITECT

Name: _____

Accepted by:
CONTRACTOR

Name: _____

By: _____ Date: _____

By: _____ Date: _____

Approved by:

Name: _____

By: _____ Date: _____

OWNER

Name: _____

By: _____ Date: _____

SECTION XIV.
CONTRACTOR'S
TRADE PAYMENT BREAKDOWN

TRADE PAYMENT BREAKDOWN

PROJECT: _____

CONTRACT # C

CONTRACTOR: _____

[illegible]

EXHIBIT A: SAFETY EHS PLAN

EXHIBIT A. SAFETY EHS PLAN

FASHION INSTITUTE OF TECHNOLOGY

OUTLINE FOR PREPARING WORK-SPECIFIC ENVIRONMENT, HEALTH AND SAFETY (EHS) PLAN

Before commencing work on site at FIT, Contractor shall prepare a work-specific EHS Plan and submit the EHS Plan to both the Facilities Management and EHS Departments for review and approval. Such approval shall be given in a timely manner.

I) A work-specific EHS Plan is required in the following instances:

- A) When proposed work will:
 - 1) use regulated hazardous chemicals;
 - 2) have the potential to generate fumes, vapors or dusts;
 - 3) involve cutting torches or other spark-generating equipment (“hot” work);
 - 4) generate any waste;
 - 5) involve high-energy systems or
 - 6) require any type of air monitoring.
- B) When work involves the removal of less than 25 linear feet, or 10 square feet, of asbestos-containing material (that is greater than 1% asbestos). For work involving more than these amounts of asbestos, Contractor must consult with the EHS Department for additional guidelines.
- C) When work involves the use of tools and equipment in areas where FIT employees or students are present.
- D) When work involves construction, other than minor repairs or alterations to on-campus facilities.
- E) When work involves dangerous environments, such as confined spaces, hazardous energy, use scaffolds greater than 10 feet high, or vehicle-mounted articulated booms.

II) Use the outline below to develop the work-specific EHS Plan. Contractor shall amend the work-specific EHS Plan as needed to accommodate work on-campus as it proceeds.

DESCRIPTION OF CONTENTS OF WORK-SPECIFIC EHS PLAN

III) GENERAL INFORMATION – PROJECT PLANNING

- A) List primary information about Contractor’s firm and that of sub-

contractors, if any, Project Name, FIT Bid Number and Contractor's safety-related performance measurements on Table 1.

- B) Describe the scope of work and list a breakdown of its specific tasks.
- C) Provide a project schedule that, at a minimum, shows the anticipated start date of the work, the duration of each phase of the work, the anticipated date of completion of each phase, and the project completion date.
- D) List name of Contractor's on-site EHS Coordinator and the names of all OSHA- competent persons needed to carry out the scope of work on Table 2. The EHS Coordinator shall serve as the primary contact with FIT's Director of EHS Compliance during all work.

IV) WORK-SPECIFIC HAZARD ANALYSIS/RISK ASSESSMENT

- A) Describe each task associated with the work of the project.
- B) List the potential hazards, if any, associated with each task.
- C) Provide copies of Contractor's EH&S program applicable to scope of work.
- D) List the types of protective work practices or personal protective equipment (PPE) Contractor will employ to carry-out each task.
- E) Describe the types of exposure assessments that are needed to address potential hazardous exposures related to the work of the project. These include:
 - 1) Work practices and engineering controls Contractor will use to prevent exposure of Contractor's employees to hazardous chemicals or hazardous energy;
 - 2) Work practices and engineering controls Contractor will use to prevent exposure of FIT students and staff to any detectable chemical exposure;
 - 3) Contractor's use of respiratory protection and other protective equipment (PPE) and
 - 4) Qualitative or quantitative monitoring protocols, personal and area monitoring equipment, and contaminant action levels.
- F) Attach copies of certified documentation of "Hazard Assessment and Equipment Selection" required by 29 CFR 1910.132 (d)(2) that complies with 1910 Subpart I Appendix B for all tasks in the work-specific EHS Plan.
- G) Attach a copy of Contractor's written Hazard Communication Program that OSHA requires for the work-specific EHS Plan.

V) WORK-SPECIFIC ENVIRONMENTAL, HEALTH AND SAFETY ELEMENTS

A) To address health and safety issues, the work-specific EHS Plan shall:

- 1) Describe criteria for upgrading or downgrading personal protective equipment (PPE) or modifying work practices to control hazardous exposures during the work;
- 2) Describe criteria Contractor will use to set up exclusion zones, including physical barriers and decontamination zones, as needed to prevent spread of debris and restrict access of unauthorized persons to work areas;
- 3) List equipment Contractor will use for routine and emergency on-site communication;
- 4) Describe utility clearance and marking procedures to prevent damage to buried utilities, or to lines, piping, or cables located inside of walls and ceilings, if applicable;
- 5) Describe decontamination and cleaning procedures for Contractor's employees and equipment to prevent the spread of debris. This includes procedures during work, at the end of each work day, and at the completion of the project before FIT's final inspection of the work area;
- 6) Identify measures to manage dangerous environments, such as confined spaces, scaffold work greater than 10 feet, or articulated booms;
- 7) List "Hot Work" procedures involved in the work of the project. This may include, but not be limited to, work such as welding, burning, open flames, tar melting or other type of melting pots, grinding that throws sparks. (See Appendix 1 - "Daily Safety Management Work Permit");
- 8) Identify the need for air monitoring or special testing to carry out the work. Include a listing of monitoring equipment or special tests and the Action Levels that Contractor will apply to project work;
- 9) Describe safety procedures for excavations more than four 4 feet deep and sloping or shoring procedures where excavations will exceed 5 feet deep;
- 10) Describe fire protection and explosive hazard review;
- 11) List the name and address of Contractor's on-contract Confined Space rescue team;
- 12) Describe spill control procedures for chemical products Contractor will have on-campus during work. Include a listing of spill control or containment supplies that Contractor will have on-hand in case of a spill;
- 13) Describe the need for site coordination with FIT employees, other contractors on-site and other adjacent work groups. This includes identification of hazardous energy Lock Out and Tag Out

requirements to make to work area safe and

- 14) Provide a listing of other safety equipment that Contractor will have on site during the work of the project.

B) To address oil, chemical and waste management issues, the work-specific EHS Plan shall:

- 1) Provide estimates of the types and amounts of waste (both hazardous and non-hazardous) that Contractor anticipates the work will generate. As applicable, provide a copy of a waste analysis plan that lists the types of analysis required, the USEPA SW-846 method number and the method detection limits;
- 2) Provide facility name, USEPA ID number, and a contact name for each facility that will transport and dispose of each of the waste streams identified above. Provide this information for any facility that will dispose of residuals from the treatment of project waste, as applicable;
- 3) On a copy of a drawing that will be provided by FIT, identify location where Contractor proposes to accumulate waste during work, to set-up exclusion zones and to provide employee decontamination areas;
- 4) Provide a statement that describes the methods that Contractor will use to minimize the amount of waste generated from the work of the project;
- 5) Provide a tabular listing, along with copies of Safety Data Sheets (SDS), for any chemical products that Contractor intends to store or use on-site during the work. The listing shall include the product name, manufacturer's name, type, amounts, intended storage location on FIT site, the specific use of the chemical and identification of any NYCDEP/USEPA regulated hazardous substances that Contractor intends to store or use on-site during the work. In all cases, Contractor must submit the listing before chemical products are delivered to the FIT campus;
- 6) On a copy of a drawing that will be provided by FIT, identify location where Contractor proposes to store chemical products on-site during work;
- 7) Identify the need, if any, to amend existing FIT emergency contingency planning documents. Such documents include, but are not limited to: Spill Prevention Control and Countermeasure Plan, Spill Prevention Report, Right-to-Know Survey and
- 8) List permits and Certificates of Fitness (NYCDEP, NYSDEC, USEPA, FDNY) needed to carry-out the scope of work and have copies on-site of permits and Certificates to carry-out project work.

VI) ON-SITE DOCUMENTATION

- A) Contractor shall record initial and daily safety-related procedures on Table 3. These shall include:

- 1) Before start of the work, FIT's Project Manager will conduct a FIT Hazard Communication briefing for Contractor's employees;
 - 2) Before start of the work, FIT's Project Manager and Contractor's on-site EHS Coordinator shall conduct a briefing for FIT employees in areas adjacent to work areas about proposed work;
 - 3) Review of FIT Emergency Evacuation Procedures;
 - 4) Listing of initial and ongoing project status meetings on-site with FIT Project Manager to address EHS concerns safety and health and
 - 5) Scheduled and unscheduled employee safety briefings, toolbox talks.
- B) Contractor shall provide a summary of the on-site EHS Coordinator's EHS-related training and experience relevant to the work of the project.
- C) Contractor's employees shall sign-in daily with FIT Security in the A-Building Lobby.
- D) For each work shift necessary to complete the project, Contractor's on-site EHS Coordinator shall open and fill out the "Daily Safety Management Work Permit" (See Appendix 1) at the start of each work shift and close the Permit at the end of each work shift.

VII) EMERGENCY RESPONSE PLANNING

Contractor shall review the summary of the Emergency Response Contact Names listed on Table 4 and provide the information as follows:

- A) On a site map that will be provided by FIT, identify the primary and secondary routes for the evacuation of Contractor's employees, including the "rally point" where Contractor's employees will assemble and carry-out an accountability check in case of an evacuation;
- B) List emergency response contacts with titles and telephone numbers. Contractor shall immediately call FIT Security and the FIT Project Manager in the event of a spill of oil, chemicals, waste water, or hazardous materials;
- C) Identify the name, address and route to nearest hospital or Contractor's wellness center and
- D) Provide a listing of emergency equipment for first aid, personal protection, spill response, fire protection and rescue.

TABLE 1

Project Name: _____ **Bid Number:** _____

CONTACTOR ORGANIZATION CHART AND SAFETY DATA

COMPANY	:	Name: Address: Phone:
President	:	Name: Phone:
Vice President – Operations	:	Name: Phone:
Director of Environmental, Health, and Safety	:	Name: Phone:
Contractor EHS Program Development	:	Name: Phone:
OSHA Total Case Recordable Rate (TCRR)	:	
Days Away from work, or Restricted work or job Transfer (DART)	:	
Experience Modification Rate (EMR)	:	

Listing of On-site Subcontractors for project work, as applicable -

[illegible]

TABLE 2**ON-SITE SUPERVISORY PERSONNEL**
of 2**Page 1**

TITLE	:	NAME(S) AND ON-SITE PHONE NUMBER
On-site EHS Coordinator	:	
Contractor Project Managers	:	
FIT's Project Manager(s)	:	
<u>Contractor's Competent Persons</u>		List all that Apply – Indicate not applicable areas for department /project work as “NA” For subcontractor employees, place subcontractor firm name in parenthesis after the employee's name
• Confined Spaces	:	
• Excavations	:	
• Industrial Hygiene	:	
• Electrical--Lock Out/Tag Out	:	
• PPE, Respiratory Protection	:	
• Hazard Communication (Required for each department and project. Identify responsible employee for each subcontractor)	:	
• Fall Protection	:	
• Scaffolds	:	
• Cranes & Derricks	:	
• Blasting & Use of Explosives	:	

TABLE 2 (Cont'd)**ON-SITE SUPERVISORY PERSONNEL****Page 2 of 2**

- Asbestos (Attach copies of Company license, supervisor and handler certificates for all employee that will perform work) :

- Lead

- Silica

- Hot Work (Complete and submit permits daily - see Appendix 1)

- FDNY Certificate of Fitness-Torch Operations

- FDNY Certificate of Fitness-Fire Guard

- FDNY Certificate of Fitness-Fire proofing

- FDNY Certificate of Fitness-Powder Activated Tools

- FDNY Certificate of Fitness-Air Compressors_____

- FDNY Certificate of Fitness-Use of LPG and Use in Tar Kettles

- FDNY REFRIGERATING SYSTEM OPERATING ENGINEER

- FDNY Certificate of Fitness-Other_____

- FDNY Certificate of Fitness-Other_____

-

-

TABLE 3

LISTING OF REQUIRED EMPLOYEE/SUPERVISORY BRIEFINGS

Page 1 of 1

[illegible]

TABLE 4**EMERGENCY CONTACT NAMES & TELEPHONE NUMBERS****Page 1 of****1**

TITLE	CONTACT NAME	EMERGENCY PHONE NUMBERS
Contractor: MAIN OFFICE		
Contractor President:		
On-site EHS Coordinator		
FIT Facilities Management	Executive Director: Allen King	Phone: 212-217-4424
FIT Environmental, Health and Safety Department	Director: Paul DeBiase paul_debiase@fitnyc.edu	Phone: 212-217-3752
	Coordinator: Kathy Caraballo kathy_caraballo@fitnyc.edu	Phone: 212-217-3754
Contractor Project Manager(s)		
FIT Public Safety	Central Control	212-217-7777, or Use Red Phone
Occupational Safety And Health Administration, – Area Director	Provide Zip Code for the location of Accident	800-321-6742
Location of nearest hospital and/or contractor's wellness center		
Rally Point and Accountability Check Location	In case of Building Evacuation Alarm	

Note: Call FIT Central Control at 212-217-7777 in case of any emergency such as fire, chemical spills, injury requiring medical treatment, or exposure of contractor or FIT personnel to fumes, vapors, or dusts.

EXHIBIT B: PREVAILING WAGE SCHEDULE



Kathy Hochul, Governor

Roberta Reardon, Commissioner

Fashion Institute of Technolog
Sam Li, Director of Procurement
227 W27th Street
New York NY 10001

Schedule Year 2024 through 2025
Date Requested 01/02/2025
PRC# 2025000049

Location Fashion Institute of Technolog
Project ID# C1668
Project Type Provide labor, materials, tests, tools and equipment to complete the Haft Theater Roof Renovation Project.

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

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

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

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

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

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

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

Introduction

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

Responsibilities of the Department of Jurisdiction

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

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

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

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

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

Hours

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

Wages and Supplements

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

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

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

Payrolls and Payroll Records

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

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

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

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

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

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

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

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

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

Withholding of Payments

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

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

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

Summary of Notice Posting Requirements

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

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

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

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

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

Apprentices

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

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

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

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

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

Interest and Penalties

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

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

Debarment

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

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

Criminal Sanctions

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

Discrimination

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

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

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

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

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

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

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

Workers' Compensation

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

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

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

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

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

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

Unemployment Insurance

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



Kathy Hochul, Governor

Roberta Reardon, Commissioner

Fashion Institute of Technolog
Sam Li, Director of Procurement
227 W27th Street
New York NY 10001

Schedule Year 2024 through 2025
Date Requested 01/02/2025
PRC# 2025000049

Location Fashion Institute of Technolog
Project ID# C1668
Project Type Provide labor, materials, tests, tools and equipment to complete the Haft Theater Roof Renovation Project.

Notice of Contract Award

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

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

Contractor Information

All information must be supplied

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

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

Social Security Numbers on Certified Payrolls:

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

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

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

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

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

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

Effective June 23, 2020

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

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

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

1. Purpose and Scope:

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

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

2. Background and Statutory References:

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

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

3. Procedures and Agency Responsibilities:

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

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

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

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

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

Reports should contain the following information:

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

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

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

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



Required Notice under Article 25-B of the Labor Law

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

The law says that you are an employee unless:

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

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

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

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

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

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

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

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

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

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

Employer Name:

IA 999 (09/16)



Attention Employees

THIS IS A: **PUBLIC WORK PROJECT**

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

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

Chapter 629 of
the Labor Laws
of 2007:

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



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

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

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

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

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

The Bureau will enforce the statute as follows:

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

Proof of completion may include but is not limited to:

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

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

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

WICKS

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

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

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

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

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

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

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

Classification

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

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

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

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

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

Payrolls and Payroll Records

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

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

Paid Holidays

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

Overtime

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

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

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

Supplemental Benefits

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

Effective Dates

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

Apprentice Training Ratios

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

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

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

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

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

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

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

New York County General Construction

Asbestos Worker

01/01/2025

JOB DESCRIPTION Asbestos Worker

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024

Asbestos Worker \$ 47.25
Removal & Abatement Only*

NOTE: *On Mechanical Systems that are NOT to be SCRAPPED.

SUPPLEMENTAL BENEFITS

Per Hour:

Asbestos Worker \$ 13.65
Removal & Abatement Only

OVERTIME PAY

See (B, B2, *E, J) on OVERTIME PAGE

*Hours worked on Saturdays are paid at time and one half only if forty hours have been worked during the week.

HOLIDAY

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

REGISTERED APPRENTICES

Apprentice Removal & Abatement Only:

1000 hour terms at the following percentage of Journeyman's rates.

1st	2nd	3rd	4th
78%	80%	83%	89%

SUPPLEMENTAL BENEFIT

Per Hour:

Apprentice
Removal & Abatement \$ 13.65

4-12a - Removal Only

Boilermaker

01/01/2025

JOB DESCRIPTION Boilermaker

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 01/01/2025

Boilermaker \$ 67.38 \$ 68.88

Repairs & Renovations 67.38 68.88

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

SUPPLEMENTAL BENEFITS

Per Hour:

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

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

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

OVERTIME PAY

See (*B, O, **U) on OVERTIME PAGE

Note:* Includes 9th & 10th hours, double for 11th or more.

** Labor Day ONLY, if worked.

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

HOLIDAY

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

REGISTERED APPRENTICES

Wage per hour:

(1/2) Year Terms at the following percentage of Boilermaker's Wage

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

Supplemental Benefits Per Hour:

	33.5% of Hourly Wage Paid Plus Amount Below	33.5% of Hourly Wage Paid Plus Amount Below
1st Term	\$ 20.36	\$ 20.36
2nd Term	21.28	21.28
3rd Term	22.22	22.22
4th Term	23.12	23.12
5th Term	24.07	24.07
6th Term	25.00	25.00
7th Term	25.93	25.93

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

4-5

Broadband	01/01/2025

JOB DESCRIPTION Broadband

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour:	07/01/2024	06/29/2025
Field Tech	\$ 52.40	\$ 53.97
Install/Repair		

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

SUPPLEMENTAL BENEFITS

Per Hour: \$ 23.24

OVERTIME PAY

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

HOLIDAY

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

4-CWA-Dist1

Carpenter	01/01/2025

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

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

WAGES

Per hour:	07/01/2024
Piledriver	\$ 60.59 + 10.00*
Dockbuilder	\$ 60.59 + 10.00*

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

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker \$ 45.79

OVERTIME PAY

See (B, E2, O) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour

(1)year terms:

1st	2nd	3rd	4th
\$26.98	\$32.58	\$40.96	\$49.35
+ 5.50*	+ 5.50*	+ 5.50*	+ 5.50*

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

Supplemental benefits per hour:

All Terms: \$ 32.34

8-1556 Db

Carpenter

01/01/2025

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

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

WAGES

Per hour: 07/01/2024

Carpet/Resilient

Floor Coverer \$ 55.05
+ 8.25*

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

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

SUPPLEMENTAL BENEFITS

Per hour:

\$ 39.45

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

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

Paid for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

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

REGISTERED APPRENTICES

Wage per hour - (1) year terms:

1st	2nd	3rd	4th
\$ 25.20	\$ 28.20	\$ 32.45	\$ 40.33
+ 1.85*	+ 2.35*	+ 2.85*	+ 3.85*

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

Supplemental benefits per hour:

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

8-2287

Carpenter**01/01/2025**

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

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

WAGES

Per Hour: 07/01/2024

Marine Construction:

Marine Diver	\$ 75.46
	+ 10.00*

Marine Tender	\$ 55.00
	+ 10.00*

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

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker	\$ 45.65

OVERTIME PAY

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

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms.

1st year	\$ 26.98
	+ 5.50*
2nd year	32.58
	+ 5.50*
3rd year	40.96
	+ 5.50*
4th year	49.35
	+ 5.50*

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

Supplemental Benefits

Per Hour:

All terms	\$ 32.20

8-1456MC

Carpenter**01/01/2025**

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

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

WAGES

Per hour: 07/01/2024

Building	
Millwright	\$ 59.35
	+ 13.12*

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

SUPPLEMENTAL BENEFITS

Per hour:

Millwright \$ 45.41

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE

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

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms:

1st.	2nd.	3rd.	4th.
\$ 32.16	\$ 37.61	\$ 43.06	\$ 53.96
+ 7.08*	+ 8.25*	+ 9.42*	+ 11.76*

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

Supplemental benefits per hour:

One (1) year terms:

1st.	2nd.	3rd.	4th.
\$ 30.56	\$ 33.09	\$ 36.27	\$ 40.69

8-740.1

Carpenter

01/01/2025

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

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

WAGES

Per Hour:

07/01/2024

Timberman \$ 55.59
+ 10.26*

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

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2024

\$ 44.96

OVERTIME PAY

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

HOLIDAY

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

Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms:

1st	2nd	3rd	4th
\$24.96	\$30.07	\$37.72	\$45.38
+ 5.55*	+ 5.55*	+ 5.55*	+ 5.55*

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

Supplemental benefits per hour:

All terms \$ 31.95

Carpenter

01/01/2025

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

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

PARTIAL COUNTIES

Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.

Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.

Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour: 07/01/2024

Core Drilling:

Driller \$ 46.25
+ 3.25*

Driller Helper \$ 36.28
+ 3.25*

Note: Hazardous Waste Pay Differential:

For Level C, an additional 15% above wage rate per hour

For Level B, an additional 15% above wage rate per hour

For Level A, an additional 15% above wage rate per hour

Note: When required to work on water: an additional \$ 3.00 per hour.

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

SUPPLEMENTAL BENEFITS

Per hour:

Driller and Helper \$ 30.24

OVERTIME PAY

See (B, G, P) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

8-1536-CoreDriller

Carpenter

01/01/2025

JOB DESCRIPTION Carpenter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Putnam, Queens, Richmond

PARTIAL COUNTIES

Nassau: The portion of the county that lies west of Seaford Creek and south of the Southern State Parkway.

WAGES

Per hour: 07/01/2024

Show Exhibit \$ 55.75
+ 9.80**

Bldg. Carpenter* \$57.05
+ 8.39**

* Not applicable in Putnam County

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

SUPPLEMENTAL BENEFITS

Per hour worked:

Show Exhibit \$ 45.20
Bldg. Carpenter 39.75

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (18, 19) on HOLIDAY PAGE

Paid: for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

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

REGISTERED APPRENTICES

Wages per hour: Show Exhibit

(1) year terms:

1st.	2nd.	3rd.	4th.
\$22.30	\$27.88	\$36.24	\$44.60
+ 4.90*	+ 4.90*	+ 4.90*	+ 4.90*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

All terms \$ 30.25

Wages per hour: Bldg. Carpenter

(1) year terms:

1st	2nd	3rd	4th
\$ 22.20	\$ 25.20	\$ 29.45	\$ 37.33
+ 2.14*	+ 2.59*	+ 3.09*	+ 4.09*

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

Supplemental benefits per hour:

1st	2nd	3rd	4th
\$ 15.37	\$ 16.42	\$ 19.52	\$ 20.52

8-EXHIB

Carpenter - Heavy&Highway

01/01/2025

JOB DESCRIPTION Carpenter - Heavy&Highway

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES

Nassau: That portion of the county that lies West of Seaford Creek and South of the Southern State Parkway.

WAGES

Per hour:

07/01/2024

Heavy & Highway

Carpenter

\$ 60.59
+ 10.00*

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

SUPPLEMENTAL BENEFITS

Per hour worked:

Heavy & Highway

Carpenter

\$ 45.70

OVERTIME PAY

See (B, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

Paid : for 1st & 2nd yr

Apprentices See (5, 6, 11, 13, 25)

REGISTERED APPRENTICES

Wage per hour:

One (1) year terms:

	1st	2nd	3rd	4th
Heavy & Highway	\$ 26.98	\$ 32.58	\$ 40.96	\$ 49.35

+ 5.50* + 5.50* + 5.50* + 5.50*

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

Supplemental Benefits:

Per Hour:

All terms
\$ 32.25

8-NYC H/H

Electrician

01/01/2025

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2024

Tree Trimmer \$ 35.24
Ground Person 20.69

Applies to line clearance, tree work, and right-of-way preparation on all new or existing overhead, electrical, telephone, and CATV lines.

SUPPLEMENTAL BENEFITS

Per hour:

Tree Trimmer \$ 13.20
Ground Person 7.75

OVERTIME PAY

See (B, *H, Q) on OVERTIME PAGE

*Worked performed on Sundays & Holidays outside of 7.00am - 4.00pm shall be paid at double time, in addition to the holiday pay if applicable.

HOLIDAY

Paid: See (5, 6, 10, 11, 15, 16, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 15, 16, 26) on HOLIDAY PAGE

(An additional floating holiday after four years service)

9-3T

Electrician

01/01/2025

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2024

Electrician \$ 32.00
Telephone 32.00

Maintenance and Jobbing-Electrical and teledata work of limited duration and scope, consisting of repairs and/or replacement of electrical and teledata equipment.

- Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

SUPPLEMENTAL BENEFITS

Journeyworker:

07/01/2024
\$ 27.20
29.23*

* Applies to overtime hours

OVERTIME PAY

See (B, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

9-3m

Electrician**01/01/2025**

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per hour: 07/01/2024

Service Technician \$ 37.40

Service and Maintenance on Alarm and Security Systems.

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

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 21.85

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

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

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

9-3H

Electrician**01/01/2025**

JOB DESCRIPTION Electrician

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour: 07/01/2024

Electrician
Audio/Sound and
Temporary Light/
Power \$ 62.00

Solar-Photovoltaic Systems

Group 1 62.00

All tasks not listed in Group 2

Group 2 32.00

D.C portion and associated mechanical equipment related to solar systems,
(excluding battery storage and its associated equipment) including work related to
Weather Stations and Data Acquisitions/Monitoring Systems on solar photovoltaic systems.

Mounting of PV modules.

Mounting of DC optimizers to back of modules if the installation calls for this equipment.

Mounting of microinverters to back of modules and install trunk cabling on racking if called for.

Module to module connection of PV modules to adjacent modules. If racking manufacturer provides integrated inter-row cable management,
install string jumper to complete the string in full in same sub-array.

If racking manufacturer does not provide integrated inter-row cable management, run conduit between rows, bond it and run string jumper to
complete string in full in same sub-array.

Installation of weather stations and other weather station relevant sensors as specified.

Installation of data acquisition system (DAS) for PV system monitoring.

SHIFT WORK

Evening (Swing Shift):

Electrician

Audio/Sound and Temporary Light/ Power	\$ 72.75

Night (Graveyard Shift): Electrician Audio/Sound and Temporary Light	\$ 81.49

SUPPLEMENTAL BENEFITS

Per Hour:

Electrician	\$ 66.09 70.01*

Swing Shift:	75.07 79.66*

Graveyard Shift:	82.66 87.81*

Temporary Light/Power:	30.33 33.64*

Group 1:	66.09 70.01*

Group 2:	27.21 29.23*

* Applies when premium (OT) wages are paid.

Temporary Light and Power benefit rate applies for three or less workers.

Reduce benefit rate by 6.2% for any employee who has accumulated wages of \$168,600 for the same employer.

OVERTIME PAY

See (A, H) on OVERTIME PAGE

See (B) for Temporary Light and Power

HOLIDAY

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

REGISTERED APPRENTICES

Wages Per Hour:

One (1) year terms	
First term:	07/01/2024
0-6 mos.	\$ 18.00
7-12 mos.	18.50
Second term:	
0-6 mos.	19.50
7-12 mos.	20.50
Third term	
0-6 mos.	21.50
7-12 mos.	22.50
Fourth term:	
0-6 mos.	23.50
7-12 mos.	25.50
Fifth term/MIJ:	
0-12 mos.	27.50
13-18 mos.	32.00

Supplemental Benefits per hour:

One (1) year terms:

First Term:	Regular	Overtime
0-6 mos.	\$ 17.18	\$ 18.38
7-12 mos.	17.44	18.67

Second Term:		
0-6 mos.	17.97	19.26
7-12 mos.	18.49	19.85
Third Term:		
0-6 mos.	19.02	20.44
7-12 mos.	19.54	21.03
Fourth Term:		
0-6 mos.	20.06	21.62
7-12 mos.	21.11	22.80
Fifth Term/MIJ:		
1-12 mos.	24.79	26.52
13-18 mos.	27.21	29.23

9-3

Electrician - Highway and Street Lighting, Traffic Signals and Controls

01/01/2025

JOB DESCRIPTION Electrician - Highway and Street Lighting, Traffic Signals and Controls **DISTRICT** 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

07/01/2024

Electro Pole Electrician \$ 62.00

Electro Pole Foundation
Installer 47.66

Electro Pole Maintainer 41.61

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2024

Electro Pole Electrician \$ 68.20
72.12*

Electro Pole Foundation
Installer 51.68
54.69*

Electro Pole Maintainer 47.03
49.66*

*Applies when premium wages are paid

Note: Reduce benefit rate by 6.2% for any employee who has accumulated wages in \$168,600 for the same employer.

OVERTIME PAY

See (A, B, E4, F, K) on OVERTIME PAGE

B - Applies to Electro Pole Foundation Installer

E4 - Applies to Electro Pole Maintainer

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

9-3J

Elevator Constructor

01/01/2025

JOB DESCRIPTION Elevator Constructor **DISTRICT** 4

ENTIRE COUNTIES

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

PARTIAL COUNTIES

Rockland: Entire County except for the Township of Stony Point

Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per hour:

	07/01/2024	03/17/2025
Elevator Constructor	\$ 80.35	\$ 83.37
Modernization & Service/Repair	63.16	65.54

SUPPLEMENTAL BENEFITS

Per Hour:

Elevator Constructor	\$ 46.367	\$ 47.654
Modernization & Service/Repairs	45.217	46.470

OVERTIME PAY

Constructor See (D, M, T) on OVERTIME PAGE.

Modern/Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY

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

REGISTERED APPRENTICES

WAGES PER HOUR:

6 MONTH TERMS:

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

* Note: 1st, 2nd, 3rd Terms are based on Average of the Constructor, the Modernization and the Service/Repair wage.
Terms 4 thru 9 Based on Journeyman's wage of classification Working in.

SUPPLEMENTAL BENEFITS:

	07/01/2024	03/17/2025
Elevator Constructor		
1st Term	\$ 0.00	\$ 0.00
2nd & 3rd Term	36.15	36.90
4th & 5th Term	37.19	37.99
6th & 7th Term	38.80	39.70
8th & 9th Term	40.41	41.40
Modernization & Service/Repair		
1st Term	\$ 0.00	\$ 0.00
2nd & 3rd Term	36.15	36.90
4th & 5th Term	37.19	37.99
6th & 7th Term	38.80	39.70
8th & 9th Term	40.41	41.40

4-1

Glazier

01/01/2025

JOB DESCRIPTION Glazier

DISTRICT 8

ENTIRE COUNTIES

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

WAGES

Per hour:

	07/01/2024	05/01/2025
Glazier, Glass Tinting and Window Film	\$ 63.28	Additional \$ 1.11***
Scaffolding, including swing scaffold	67.28	

*Mechanical Equipment	64.28
**Repair & Maintenance	30.76

*Mechanical equipment, scissor jacks, man lifts, booms & buckets 30' or more, but not pipe scaffolding.

**Repair & Maintenance- All repair & maintenance work on a particular building whenever performed, where the total cumulative Repair & Maintenance contract value is under \$193,000.

***To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour: 7/01/2024

Glazier, Glass Tinting \$ 42.13
Window Film, Scaffolding
and Mechanical Equipment

Repair & Maintenance 24.62

OVERTIME PAY

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

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

HOLIDAY

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

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

For 'Repair & Maintenance'

Paid: See(5, 6, 16, 25)

Overtime: See(5, 6, 16, 25)

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage rates:

7/01/2024

1st term	\$ 22.34
2nd term	30.64
3rd term	40.87
4th term	50.14

Supplemental Benefits:

(Per hour)

1st term	\$ 19.27
2nd term	27.34
3rd term	32.85
4th term	36.01

8-1087 (DC9 NYC)

Insulator - Heat & Frost

01/01/2025

JOB DESCRIPTION Insulator - Heat & Frost

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024

Insulators
Heat & Frost \$ 71.01

SUPPLEMENTAL BENEFITS

Per Hour:

Insulators \$ 36.76
Heat & Frost

OVERTIME PAY

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

* Triple time for Labor Day (If worked)

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

Wages:

1 year terms.

Wages Per Hour:

1st	2nd	3rd	4th
\$ 31.96	\$ 39.06	\$ 46.16	\$ 53.26

Supplemental Benefits:

\$ 16.56	\$ 20.23	\$ 23.91	\$ 27.06

4-12

Ironworker

01/01/2025

JOB DESCRIPTION Ironworker

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per Hour:	07/01/2024	01/01/2025 Additional
Stone Derrickmen Rigger	\$ 75.40	\$ 1.64*
Stone Handset Derrickman	72.55	1.11*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:

Stone Derrickmen Rigger	\$ 45.52
Stone Handset Derrickman	44.76

OVERTIME PAY

See (B, D1, *E, Q, **V) on OVERTIME PAGE

*Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.

** Benefits same premium as wages on Holidays only

HOLIDAY

Paid: See (18) on HOLIDAY PAGE

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

Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES

Wage per hour:

Stone Derrickmen Rigger:

	1st	2nd	3rd	4th
07/01/2024	\$ 37.20	\$ 53.28	\$ 59.32	\$ 65.36

Supplemental Benefits:

Per hour:				
07/01/2024	23.27	34.39	34.39	34.39

Stone Handset:

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

	1st	2nd	3rd	4th
07/01/2024	\$ 35.78	\$ 51.04	\$ 56.79	\$ 62.55

Supplemental Benefits:

Per hour:				
07/01/2024	22.95	34.08	34.08	34.08

9-197D/R

Ironworker

01/01/2025

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 01/01/2025

Ornamental	\$ 47.65	\$ 47.90
Chain Link Fence	47.65	47.90
Guide Rail	47.65	47.90

SUPPLEMENTAL BENEFITS

Per hour:
Journeyworker: \$ 66.29 \$ 67.29

OVERTIME PAY

See (B, B1, Q, V) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

1 year terms

1st Term	\$ 25.98	\$ 27.40
2nd Term	28.45	30.02
3rd Term	30.80	32.49
4th Term	34.39	36.27

Supplemental Benefits per hour:

1st Term	\$ 16.29	\$ 16.29
2nd Term	18.29	18.29
3rd Term	19.29	19.29
4th Term	20.29	20.29

4-580-Or

Ironworker

01/01/2025

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

PER HOUR: 07/01/2024 01/01/2025

Ironworker:		
Structural	\$ 57.20	\$ 58.45
Bridges		
Machinery		

SUPPLEMENTAL BENEFITS

PER HOUR PAID:

Journeyman \$ 89.85 \$ 91.35

OVERTIME PAY

See (B, B1, Q, *V) on OVERTIME PAGE

*NOTE: Benefits are calculated for every hour paid.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES

WAGES PER HOUR:

6 month terms at the following rate:

1st	\$ 30.23	\$ 30.36
2nd	30.83	30.96
3rd - 6th	31.44	31.57

Supplemental Benefits
PER HOUR PAID: 62.47 63.48

4-40/361-Str

Ironworker

01/01/2025

JOB DESCRIPTION Ironworker

DISTRICT 4

ENTIRE COUNTIES

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

PARTIAL COUNTIES

Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES

Per hour: 07/01/2024

Reinforcing &
Metal Lathing \$ 56.95

"Base" Wage 55.20
plus \$ 1.75

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

SUPPLEMENTAL BENEFITS

Per hour:
Reinforcing & Metal Lathing \$ 44.63

OVERTIME PAY

See (B, E, Q, *X) on OVERTIME PAGE

*Only \$23.50 per Hour for non worked hours

Supplemental Benefit Premiums for Overtime Hours worked:

Time & One Half \$ 51.13
Double Time 57.63

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 13, *18, **19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage rates:

Prior to 01/01/2020:

1st term	2nd term	3rd term	4th Term
Wage Per Hour: \$ 22.55	\$ 28.38	\$ 34.68	\$ 37.18
"Base" Wage \$21.00	\$26.80	\$33.10	\$35.60
plus \$1.55	plus \$1.58	plus \$1.58	plus \$1.58

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

SUPPLEMENTAL BENIFITS

Per Hour:

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

After 01/01/2020:

1st term	2nd term	3rd term	4th Term
Wage Per Hour: \$ 22.55	\$ 23.60	\$ 24.60	\$ 25.65
"Base" Wage \$21.00	\$22.00	\$23.00	\$24.00
plus \$1.55	plus \$1.60	plus \$1.60	plus \$1.65

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

SUPPLEMENTAL BENIFITS

Per Hour:

1st term	2nd term	3rd term	4th Term
\$18.40	\$17.40	\$16.45	\$15.45

4-46Reinf

Laborer

01/01/2025

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

Striper (Highway/streets):	07/01/2024	07/01/2025
Striping-Machine Operator	\$ 41.00	Additional \$ 3.05**
Striping Thermoplastic	45.00	
Flagger - Traffic Safety*	39.00	

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using handheld devices. Excludes the Driver/Operator of equipment used in protection of traffic safety.

** To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyworker	\$ 19.27

OVERTIME PAY

See (B, H) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 8, 13) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 13) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

1st Term (1-2000 hours)	\$ 31.36
2nd Term (2001-4000 hours)	33.00

Supplemental Benefits per hour:

All Terms	19.27

9-1010-LS

Laborer

01/01/2025

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2024

Laborer/Excavation

**Asbestos and Lead Abatement &

Removal, Hazardous Waste Removal

(including soil) \$ 45.00

Basic 45.00

Flagman 45.00

Pipelayer 45.00

*Tree Work, *Landscape 45.00

*Includes trimming, cutting, planting and/or removal of trees.

** Applies to Heavy & Highway projects

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 54.03

Note: No payment of Supplemental Benefits is required on paid holidays, when employees do not work.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

When an observed holiday falls on a Saturday, work done shall be paid at double time.

HOLIDAY

Paid: See (2, 20) on HOLIDAY PAGE

Overtime: See (2, 5, 6, 11, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1000 hour terms at the following hourly wage rate.

07/01/2024

1st	0 - 1000	\$ 22.50
2nd	1001-2000	27.00
3rd	2001-3000	33.75
4th	3001-4000	40.50

Supplemental Benefits per hour:

All Apprentices 54.03

9-731Ex

Laborer

01/01/2025

JOB DESCRIPTION Laborer

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

GROUP 14: Blasters.

GROUP 16: Tunnel workers - including Miners, Drill Runners, Iron Men, Maintenance Men, Conveyor Men, Safety Miners, Riggers, Block Layers, Cement Finishers, Rod Men, Caulkers, Powder Carriers, Miners' Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Derail Men, Form Men, Bottom Bell, Top Bell or Signal men, Form Workers, Movers, Concrete Workers, Shaft Men, Tunnel Laborers and Caulkers' Helpers.

GROUP 17: All others including: Powder Watchmen, Top Laborers and Changehouse Attendants.

Wages: (per hour) 07/01/2024

Laborer (Tunnel)-FREE AIR:

Group 14	\$ 77.13
Group 16	73.75
Group 17*	68.18

Small Bore Micro
Tunnel Machines 80% of rates above

For Repairs on Existing
Water Tunnels 90% of rates above

For Repairs of Sewer &
Drainage Tunnels 85% of rates above

For Repair & Maintenance
of all Subway &
Vehicular Tunnels 80% of rates above

*An additional \$3.00 per day when using an air spade, jack hammer or pavement breaker.

Note: Employer shall pay \$10.00 per day for each half mile starting at a point 500 feet from the bottom of the shaft.

SUPPLEMENTAL BENEFITS

Per hour:

GROUP 14	\$ 55.32
GROUP 16	53.06
GROUP 17	49.11

Small Bore Micro
Tunnel Machines 80% of rates above

For Repairs on Existing
Water Tunnels 90% of rates above

For Repairs of Sewer &
Drainage Tunnels 85% of rates above

For Repair & Maintenance
of all Subway &
Vehicular Tunnels 80% of rates above

OVERTIME PAY

OVERTIME: For Laborer (Free Air) See (D, M, R*) on OVERTIME PAGE.
For Repair Categories See (B, F, R*) on OVERTIME PAGE.
& Micro Tunneling
* Straight time first 8 hours, double time after 8 hours.

HOLIDAY

Paid: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Good Friday may be exchanged for one of the holidays listed.

9-147Tnl/Free

Laborer - Building	01/01/2025

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2024 01/01/2025

Basic Laborer and
Mason Tender \$ 44.70* \$ 45.25*

*Before calculating premium wage deduct
\$ 3.25 \$ 3.45

SUPPLEMENTAL BENEFITS

Per hour:

Basic Laborer and
Mason Tender \$ 29.99 \$ 30.69

OVERTIME PAY

See (B, B2, E, E2, Q, R) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

Wage per hour:

1000 hour terms at the following wage rate:

Term:	1st	2nd	3rd	4th
Basic Laborer and Mason Tender 07/01/2024	\$ 22.05*	\$ 23.80*	\$ 25.30*	\$ 27.80*

01/01/2025	\$ 22.25*	\$ 24.10*	\$ 25.60*	\$ 28.10*

*Before calculating premium wage deduct	\$ 0.50	\$ 0.60

Supplemental Benefits per hour:

All Terms	\$ 10.77	\$ 11.02

9-MTDC(79)

Laborer - Building	01/01/2025

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

07/01/2024

07/01/2025
Additional

Skilled Interior Demolition Laborer:	\$ 39.70*
General Interior Demolition Laborer:	28.89**

\$ 0.75***

* Before calculating overtime wages deduct \$1.70

**General Demolition Laborer performs manual work and work incidental to demolition, such as loading and carting of debris from work site to an area where it can be loaded into trucks for removal. Also performs clean-up of the site when demolition is complete.

***To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:

Skilled Interior Demolition Laborer:	24.84
General Interior Demolition Laborer:	19.16

OVERTIME PAY

See (B, B2, I, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

Wage Per Hour:

1000 hour terms at the following wage rate:

1st	2nd	3rd	4th
\$ 21.80*	\$ 23.55*	\$ 25.05*	\$ 27.55*

* Before calculating overtime wages deduct \$0.50

Supplemental Benefits Per Hour:

All Terms:	10.47

9-MTDC (79-ID)

Laborer - Building	01/01/2025

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2024

Laborer:

Laborer-Concrete

(including flag person) \$ 42.53
+ 8.00*

* This portion is not subjected to overtime premiums.

SUPPLEMENTAL BENEFITS

Per Hour \$ 20.20
+ 9.00**

** This portion subjected to overtime premiums only on codes (E,Q)

OVERTIME PAY

OVERTIME: See (A,E,Q) on OVERTIME PAGE attached.
See (B,E,Q,) for work below street level to top of foundation.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages per hour:

Terms based on hours listed:

1st	2nd	3rd
0-1334	1334-2668	2669-4000
\$ 15.35	\$ 20.15	\$ 20.95
+ 2.49*	+ 7.32*	+ 7.80*

* This portion is not subjected to overtime premiums.

Supplemental Benefits:

Per hour:

\$ 12.70	\$ 16.70	\$ 16.70
+ 2.65*	+ 3.45*	+ 4.25*

Journeyworker rate applies after 4000 hours

*This portion subjected to same premium as wages.

9-6A/18A/20-C

Laborer - Building

01/01/2025

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2024	01/01/2025
Building:		
Plasterer Tender and		
Spray Fireproofing Tender	\$ 44.70*	\$ 45.25*

* Before calculating overtime wages deduct

\$ 3.25	\$ 3.45

SUPPLEMENTAL BENEFITS

Per hour:		
Journeyworker	\$ 29.99	\$ 30.69

OVERTIME PAY

See (B, B2, E, E2, Q, R) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

Wage per hour:

1000 hours terms at the following wage.

	1st	2nd	3rd	4th
07/01/2024	\$22.05*	\$23.80*	\$25.30*	\$27.80*
01/01/2025	\$22.35*	\$24.10*	\$25.60*	\$28.10*

* Before calculating overtime wages deduct

\$ 0.50 \$ 0.60

Supplemental Benefits per hour:

All Terms:

\$ 10.77 \$ 11.02

9-30 (79)

Laborer - Building

01/01/2025

JOB DESCRIPTION Laborer - Building

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 01/06/2025

Asbestos, Lead \$ 40.55 \$ 41.15
and Hazardous
Material Abatement
Laborer

(Re-Roofing Removal See Roofer)

NOTE: Asbestos removed from Mechanical Systems not to be scrapped
See Asbestos Worker

SUPPLEMENTAL BENEFITS

Per Hour:

Laborer \$ 20.10 \$ 21.00

OVERTIME PAY

See (B, B2, I) on OVERTIME PAGE

07/01/2024 - *Calculate at \$39.00 per hour then add \$1.55

01/06/2025 - *Calculate at \$39.25 per hour then add \$1.90

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 28) on HOLIDAY PAGE

REGISTERED APPRENTICES

1000 hour terms at the following:

Per Hour:

1st Term \$ 21.00* \$ 21.48*
2nd Term 22.00** 22.48**
3rd Term 25.00*** 25.48***
4th Term 27.00**** 27.48****

SUPPLEMENTAL BENEFIT

Per Hour:

All Terms \$ 14.35 \$ 15.07

OVERTIME PAY:

07/01/2024

*Calculate at \$20.00 per hour then add \$1.00

**Calculate at \$21.00 per hour then add \$1.00

***Calculate at \$24.00 per hour then add \$1.00

****Calculate at \$26.00 per hour then add \$1.00

01/06/2025

*Calculate at \$21.20 per hour then add \$1.28

**Calculate at \$22.20 per hour then add \$1.28

***Calculate at \$24.20 per hour then add \$1.28

****Calculate at \$26.20 per hour then add \$1.28

4-NYDC(78)

Laborer - Building

01/01/2025

JOB DESCRIPTION Laborer - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2024	01/01/2025
Skilled Demolition Laborer:	\$ 42.48*	\$ 42.66*
General Demolition Laborer:	31.06**	31.24**
*Before calculating overtime wages deduct	3.00	3.05
**Before calculating overtime wages deduct	2.35	2.40

**General Demolition Laborer performs manual work and work incidental to demolition, such as loading and carting of debris from work site to an area where it can be loaded into trucks for removal. Also performs clean-up of the site when demolition is complete.

NOTE: Total Demolition Only: Demolition shall be the complete demolition (wrecking) or dismantling of entire buildings or structures. Also may include the removal of all or any portion of a roof in which structural change is to occur. Structural change is defined as the removal of structural slabs, steel members, concrete members and penetration through the structural slab.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker:

Skilled Demolition Laborer:	\$ 28.92	\$ 29.24
General Demolition Laborer:	21.98	22.30

OVERTIME PAY

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

HOLIDAY

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

REGISTERED APPRENTICES

Wage per hour:

(1) year terms at the following wage.

	1st	2nd	3rd	4th
07/01/2024	\$ 22.05*	\$ 23.80*	\$ 25.30*	\$ 27.80*
01/01/2025	22.35*	24.10*	25.60*	28.10*

*Before calculating overtime wages deduct	\$ 0.50	\$ 0.60

Supplemental Benefits per hour:

All Terms:	10.77	11.02

9-79/95

Laborer - Concrete & Asphalt Paving

01/01/2025

JOB DESCRIPTION Laborer - Concrete & Asphalt Paving

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Group 1: Slurry Seal Coater, Maintenance Safety Surface, Small Power Tool Operator, Play Equipment Installer, Temporary Fence Installer & Repairs, Laborer.

Group 2: Production Paving Work: Shoveler, small equipment operator.

Per hour:	07/01/2024
Concrete Formsetter	\$ 49.35 + \$ 8.00*
Asphalt Screeperson/Micro Paver	49.95 + \$ 8.00*
Asphalt Raker	49.35 + \$ 8.00*
Group 1	45.48 + \$ 8.00*
Group 2	45.48 + \$ 8.00*

* This portion is not subjected to overtime premiums.

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 45.55

Note: No payment of supplemental benefits is required on paid holidays, when employees do not work.

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

Note: Saturday premium rate applies from 7:00 am on Saturday to 6:59 am Sunday

Note: Sunday premium rate applies from Sunday 7:00 am to Monday 6:59 am.

HOLIDAY

Paid: See (5, *11, 20) on HOLIDAY PAGE

HOLIDAY:

Overtime: See (21,22)** on HOLIDAY PAGE.

Note: See (5,20) Holiday pay -at the single time pay rate-shall be prorated based on 25% of a day's wages and benefits for each day worked during that calendar week.

**New Year's Day and Christmas Day: If an employee is performing work on these (2) days the employee will receive the single rate plus 25%.

* Columbus Day shall be an unpaid holiday. In the event work is performed on Columbus Day, wages shall be paid on a double time basis.

Note-When Independence day falls on Saturday, it will be observed on that Saturday, however, when it occurs on a Sunday, it will be observed on the Monday.

REGISTERED APPRENTICES

Wage per hour:

2000 hours term:

1st term	2nd term
1-1999	2000-4000
\$ 31.36 + \$ 8.00*	\$ 33.00 + \$ 8.00*

* This portion is not subjected to overtime premiums.

Supplemental Benefits per hour:

2000 hours term:

1st term	2nd term
1-1999	2000-4000
\$ 18.67	\$ 18.67

9-1010H/H

Laborer - Trac Drill

01/01/2025

JOB DESCRIPTION Laborer - Trac Drill

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Group 1: Chipper/Jackhammer, Powder Carrier, Hydraulic Chuck tender, Chuck Tender and Nipper, Magazine Keeper

Group 2: Hydraulic Trac Drill

Group 3: Air Trac, Wagon and Quarry bar

Group 4: Blaster

Per Hour: 07/01/2024

Group 1	\$ 45.00
Group 2	52.35
Group 3	51.52
Group 4	58.21

SUPPLEMENTAL BENEFITS

Per Hour:

All Classifications: 54.03

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

When an observed holiday falls on a Saturday, work done shall be paid at double time.

HOLIDAY

Paid: See (2, 20) on HOLIDAY PAGE

Overtime: See (2, 5, 6, 11, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1000 hour terms at the following hourly wage rate.

07/01/2024

1st	0 - 1000	\$ 22.50
2nd	1001-2000	27.00
3rd	2001-3000	33.75
4th	3001-4000	40.50

Supplemental Benefits per hour:

All Apprentices 54.03

9-731/29

Laborer - Tunnel

01/01/2025

JOB DESCRIPTION Laborer - Tunnel

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

GROUP 5: Blasters and Mucking Machine Operators

GROUP 6: Tunnel Workers*(including Miners, Drill Runners, Iron Men, Maintenance Men, Inside Muck Lock Tender, Pumpmen, Electricians, Cement Finishers, Rod Men, Caulkers, Carpenters, Hydraulic Men, Shield Drivers, Monorail Operators, Motor Men, Conveyor Men, Safety Miners, Powder Carriers, Pan Men, Riggers, Miner's Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Form Workers, Concrete Workers, Tunnel Laborers, Caulker's Helpers), Hose Men, Grout Men, Gravel Men, Derail Men and Cable Men.

GROUP 7: Top Nipper

GROUP 8,9: Outside Man Lock Tender, Outside Muck Lock Tender, Shaft Men, Gauge Tender and Signal Men.

GROUP 10: Powder Watchmen, Top Laborers and Changehouse Attendants.

WAGES: (per hour)

07/01/2024

Laborer (Compressed Air):

GROUP 5	\$ 80.82
GROUP 6	77.95
GROUP 7	76.65
GROUP 8,9	75.10
GROUP 10	66.18

Note: Employer shall pay \$10.00 per day for each one half (1/2) mile or fraction starting from a point 500 feet from the shaft.

SUPPLEMENTAL BENEFITS

SUPPLEMENTAL BENEFITS:

per hour:

GROUP 5	\$ 57.61
GROUP 6	55.81
GROUP 7	54.68
GROUP 8,9	53.84

GROUP 1050.85

OVERTIME PAY
See (D, M, *R) on OVERTIME PAGE
NOTE: Time and one-half to be paid for all overtime repair-maintenance work on existing equipment and facilities.

* Straight time first 8 hours, double time after 8 hours.

HOLIDAY
Paid: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Good Friday may be exchanged for one of the holidays listed.

9-147Tnl/Comp Air

Mason01/01/2025

JOB DESCRIPTION Mason**DISTRICT 4**

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

WAGES
Per Hour:07/01/2024

Brick/Block Layer\$ 67.14

Base Wage for OT Calculation\$ 55.93

SUPPLEMENTAL BENEFITS
Per Hour:

Brick/Block Layer\$ 34.90

OVERTIME PAY
See (A, E, E2, Q) on OVERTIME PAGE
Note: OT Calculated on Base Wage plus \$ 11.21/hr.

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

REGISTERED APPRENTICES
(800 hour) Terms at the following Percentage of Journey workers "Base Wage" plus \$ 5.94/hr.:

1st	2nd	3rd	4th	5th
50%	60%	70%	80%	90%

Supplemental Benefits per hour:

All Apprentices\$ 24.70

4-1Brk

Mason - Building01/01/2025

JOB DESCRIPTION Mason - Building**DISTRICT 9**

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

WAGES
Building

Wages per hour:07/01/202401/01/2025
Additional

Mosaic & Terrazzo Mechanic	\$ 60.98	\$ 1.06*
Mosaic & Terrazzo Finisher	58.96	

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS
Per hour:

Mosaic & Terrazzo Mechanic\$ 31.36*
+ \$9.78

Mosaic & Terrazzo Finisher \$ 31.36*
+ \$9.77

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

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

07/01/2024- Deduct \$7.00 from hourly wages before calculating overtime.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

Easter Sunday is an observed holiday. Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES

Wages Per hour:

	1st 0- 1500	2nd 1501- 3000	3rd 3001- 3750	4th 3751- 4500	5th 4501- 5250	6th 5251- 6000
07/01/2024	\$ 25.19	\$ 32.39	\$ 38.18	\$ 40.78	\$ 49.00	\$ 55.75

Supplemental Benefits per hour:

07/01/2024	\$7.12* + 3.43	\$9.16* + 4.40	\$17.22* + 5.87	\$23.86* + 6.84	\$24.86* + 7.83	\$27.36* + 8.80

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

9-7/3

Mason - Building

01/01/2025

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2024 12/02/2024

Tile Setters \$ 64.40 \$ 64.62

SUPPLEMENTAL BENEFITS

Per Hour: \$ 28.51*
+8.52 \$ 29.01*
+8.52

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

OVERTIME PAY

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

Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

Wage per hour:

750 hour terms at the following wage rate:

	1st 1- 750	2nd 751- 1500	3rd 1501- 2250	4th 2251- 3000	5th 3001- 3750	6th 3751- 4500	7th 4501- 5250	8th 5251- 6000	9th 6001- 6750	10th 6501- 7000
07/01/2024	\$22.19	\$27.21	\$34.45	\$39.46	\$43.07	\$46.58	\$50.23	\$55.24	\$57.71	\$62.00
12/02/2024	\$22.29	\$27.35	\$34.36	\$39.41	\$43.05	\$46.60	\$50.29	\$55.33	\$57.84	\$62.20

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2024									
\$12.55*	\$12.55*	\$15.36*	\$15.36*	\$16.36*	\$17.86*	\$18.86*	\$18.86*	\$18.86*	\$24.11*
+ \$.76	+ \$.81	+ \$.91	+ \$.96	+\$1.43	+\$1.48	+\$1.91	+\$1.97	+\$4.57	+\$5.18
12/02/2024									
\$12.70*	\$12.70*	\$15.81*	\$15.81*	\$16.81*	\$18.31*	\$19.31*	\$19.31*	\$19.31*	\$24.56*
+ \$.76	+ \$.81	+ \$.91	+ \$.96	+ \$1.43	+ \$1.48	+ \$1.91	+ \$1.97	+ \$4.57	+ \$5.18

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

9-7/52

Mason - Building	01/01/2025

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per hour: 07/01/2024 01/06/2025

Building-Marble Restoration:
Marble, Stone &
Terrazzo Polisher

\$ 47.72 \$ 47.93

SUPPLEMENTAL BENEFITS

Per Hour:
Journeyworker:

Building-Marble Restoration:
Marble, Stone &
Polisher

\$ 31.50 \$ 31.86

OVERTIME PAY

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

* On Saturdays, 8th hour and successive hours paid at double hourly rate.

HOLIDAY

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

REGISTERED APPRENTICES

WAGES per hour:

900 hour term at the following wage:

	1st 1- 900	2nd 901- 1800	3rd 1801- 2700	4th 2701
07/01/2024	\$ 33.40	\$ 38.18	\$ 42.94	\$ 47.72
01/06/2025	33.54	38.34	43.13	47.93
Supplemental Benefits Per Hour:				
07/01/2024	29.06	29.87	30.69	31.50
01/06/2025	29.59	30.34	31.11	31.86

9-7/24-MP

Mason - Building	01/01/2025

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 01/06/2025

Marble Cutters & Setters \$ 63.92 \$ 64.21

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 40.05 \$ 40.51

OVERTIME PAY

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

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

Wage Per Hour:

750 hour terms at the following wage

1st	2nd	3rd	4th	5th	6th	7th	8th
0- 3000	3001- 3750	3751- 4500	4501- 5250	5251- 6000	6001- 6750	6751- 7500	7500+
07/01/2024 \$ 27.01	\$ 40.52	\$ 43.88	\$ 47.26	\$ 50.64	\$ 54.32	\$ 60.71	\$ 63.92
01/06/2025 \$ 27.24	\$ 40.84	\$ 44.25	\$ 47.63	\$ 51.05	\$ 54.58	\$ 60.99	\$ 64.21

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th
07/01/2024 \$ 26.42	\$ 29.76	\$ 30.61	\$ 31.44	\$ 32.28	\$ 37.55	\$ 39.23	\$ 40.05
01/06/2025 \$ 26.88	\$ 30.14	\$ 30.95	\$ 31.78	\$32.59	\$38.07	\$ 39.71	\$ 40.51

9-7/4

Mason - Building

01/01/2025

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour: 07/01/2024 12/02/2024

Tile Finisher \$ 49.46 \$ 49.59

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:

\$ 25.36* \$ 25.81*
+ \$8.33 + \$8.34

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

OVERTIME PAY

See (A, *E, Q) on OVERTIME PAGE

Double time rate after 10 hours on Saturdays

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

9-7/88-tf

Mason - Building

01/01/2025

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per hour: 07/01/2024 01/06/2025

Marble, Stone, Maintenance Finishers: \$ 27.72 \$ 27.99

Note 1: An additional \$2.00 per hour
for time spent grinding floor using
"60 grit" and below.

Note 2: Flaming equipment operator
shall be paid an additional \$25.00 per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Marble, Stone Maintenance Finishers:	\$ 15.74	\$ 15.88

OVERTIME PAY

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

*Double hourly rate after 8 hours on Saturday

HOLIDAY

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

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

1st term apprentice gets paid for all observed holidays.

REGISTERED APPRENTICES

WAGES per hour:

	07/01/2024	01/06/2025
0-750	\$ 22.32	\$ 22.91
751-1500	23.04	23.59
1501-2250	23.75	24.26
2251-3000	24.48	24.95
3001-3750	25.56	25.96
3751-4500	27.00	27.32
4501+	27.72	27.99

Supplemental Benefits:

Per hour:

0-750	12.69	12.43
751-1500	13.10	12.89
1501-2250	13.51	13.35
2251-3000	13.91	13.80
3001-3750	14.52	14.50
3751-4500	15.33	15.41
4501+	15.74	15.88

9-7/24M-MF

Mason - Building / Heavy&Highway

01/01/2025

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per hour: 07/01/2024 01/06/2025

Marble-Finisher	\$ 49.99	\$ 50.22

SUPPLEMENTAL BENEFITS

Journeyworker:

Per hour

Marble- Finisher	\$ 37.39	\$ 37.69

OVERTIME PAY

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

Work beyond 8 hours on a Saturday shall be paid at double the rate.

HOLIDAY

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

When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Building / Heavy&Highway

01/01/2025

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024

Cement Mason \$ 57.72

SUPPLEMENTAL BENEFITS

Per Hour:

Cement Mason \$ 34.66

1.5 X overtime rate \$ 62.95

2 X overtime rate \$ 69.32

OVERTIME PAY

See (B1, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year terms at the following wage:

1st Term \$ 23.39

2nd Term \$ 28.29

3rd Term \$ 33.69

Supplement Benefits per hour paid:

	ST	1.5X OT	2X OT
1st Term	\$ 14.86	\$ 22.30	\$ 29.72
2nd Term	\$ 15.16	\$ 22.75	\$ 30.32
3rd Term	\$ 15.27	\$ 22.91	\$ 30.54

4-780

Mason - Building / Heavy&Highway

01/01/2025

JOB DESCRIPTION Mason - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

NOTE: Shall include but not limited to Precast concrete slabs (London Walks) Marble and Granite pavers 2'x 2' or larger.

Per Hour:

07/01/2024

05/01/2025

Additional

\$ 3.42/Hr+

Stone Setter \$ 69.91

Base Rate 53.84*

Stone Tender \$51.82

Base Rate 44.54*

(+)To be allocated at a later date for all classes.

SUPPLEMENTAL BENEFITS

Per Hour:

Stone Setter \$ 42.52

Stone Tender 23.15

OVERTIME PAY

See (*C, **E, Q) on OVERTIME PAGE

* Base Rates are used to Calculate Overtime Premiums then adding in: \$15.81/Hr. for Stone Setter or \$7.28/Hr. for Stone Tender.

** On weekdays the eighth (8th) and ninth (9th) hours are time and one-half all work thereafter is paid at double the hourly rate.

*** The first nine (9) hours on Saturday is paid at time and one-half all work thereafter is paid at double the hourly rate.

HOLIDAY

Paid: See (*18) on HOLIDAY PAGE

Overtime: See (5, 6, 10) on HOLIDAY PAGE

Paid: * Must work first 1/2 of day.

REGISTERED APPRENTICES

Per Hour:

Stone Setter(800 hour) terms at the following Percentage of Stone Setters Base wage rate per hour plus \$7.32:

1st	2nd	3rd	4th	5th	6th
50%	60%	70%	80%	90%	100%

Supplemental Benefits:

All Apprentices \$ 25.85

4-1Stn

Mason - Heavy&Highway

01/01/2025

JOB DESCRIPTION Mason - Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024

Pointer, Caulkers &
Cleaners \$ 63.69

SUPPLEMENTAL BENEFITS

Per Hour:

Pointer, Cleaners &
Caulkers \$ 31.90

OVERTIME PAY

See (B, E2, H) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

Wages per hour:

One (1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$ 32.76	\$ 37.09	\$ 42.97	\$ 51.60

Apprentices Supplemental Benefits:
(per hour paid)

\$ 15.40	\$ 21.70	\$ 24.45	\$ 25.45

4-1PCC

Operating Engineer - Building

01/01/2025

JOB DESCRIPTION Operating Engineer - Building

DISTRICT 9

ENTIRE COUNTIES

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

PARTIAL COUNTIES

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

WAGES

NOTE: Construction surveying

Party Chief--One who directs a survey party

Instrument Man--One who runs the instrument and assists Party Chief.

Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour) 07/01/2024

Building Construction:

Party Chief \$ 79.99

Instrument Man	60.36
Rodman	40.45

Steel Erection:

Party Chief	83.13
Instrument Man	64.21

Rodman	44.33

Heavy Construction-NYC counties only:
(Foundation, Excavation.)

Party Chief	88.06
Instrument man	65.66
Rodman	55.70

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2024

Building Construction \$ 28.63* +\$ 7.65

Steel Erection 29.23* + 7.65

Heavy Construction 30.04* + 7.64

* This portion subject to SAME premium as wages

Non-Worked Holiday Supplemental Benefit:

21.83

OVERTIME PAY

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

Code "A" applies to Building Construction and has double the rate after 7 hours on Saturdays.

Code "B" applies to Heavy Construction and Steel Erection and had double the rate after 8 hours on Saturdays.

HOLIDAY

Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

9-15Db

**Operating Engineer - Building, Maintenance, Steel Erection
& Heavy Construction**

01/01/2025

JOB DESCRIPTION Operating Engineer - Building, Maintenance, Steel Erection & Heavy Construction

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

STEEL ERECTION:

Group 1: Derrick, travelers, tower, crawler tower & climbing cranes

Group 2: Oiler (Truck Crane)

Group 3: Oiler (Crawler Crane)

BUILDING CONSTRUCTION:

Group 1: Installing, repairing, maintaining, dismantling of all equipment including Steel cutting& bending machines, mechanical heaters, mine hoists, climbing cranes, tower cranes, Linden Peine, Lorain, Liebherr, Mannes and machines of a similar nature; Well Point system, Deep Well pumps, Concrete mixers with loading devices, Concrete plants, motor generators (When used for temporary power and lights)(Driving maintenance trucks and mounted-welded machines)-All Pumps(excluding River Cofferdam Pumps and Well Point Pumps), Motorized Concrete Buggies(When three or more are on job site), Skid-Steer and similar machines

Group 2:Maintenance of: Pumps, Generators, Mixers, Heaters

Group 3: Oilers of all gasoline, electric, diesel or air operated Gradalls; Concrete Pumps, Overhead Cranes in Power Houses, Assist in oiling, greasing and repairing of all machines, including: Driving Truck Cranes, Driving and operating Fuel and Grease Trucks, Cherry Pickers(Hydraulic Cranes) over 70,000 GVW and machines of a similar nature

Group 4: Oiler on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors(3 or more in battery)

Group 5: Maintenance on Radiant Mechanical Heaters

HEAVY CONSTRUCTION (Excavation, Foundations, etc)

Group 1:Maintenance of: Generators, Light Towers

Group 2:Maintenance of: Pumps, Mixers including mudsucking

Group 3: Base Mounted Tower Cranes

Group 4: Installing, repairing, maintaining, dismantling(of all equipment including Steel cutting & Bending machines, Fusion Coupling Machines, Vermeer Trenching machines, on-site crushing plant, mechanical heaters(1 through 7),Mine hoists, Tower Cranes, Linden Peine, Lorrain, Lebherr, Mannes or machines of a similar nature, Wellpoints)-Driving maintenance trucks and truck mounted welding machines, burning, welding-operating of accumulator for shield-driven tunnels, in addition to the performance of other duties: Handling, installation, jointing, coupling of all permanent steel and plastic pipe. RIDE UPON MOLES-tunnel boring machines-MICRO TUNNELING SYSTEMS, All temporary pipefitting;When three or more motorized concrete buggies(Ride type)are utilized on the jobsite they shall be serviced, maintained and repaired by the maintenance engineer. The Operating Engineer on autogrades(C.M.I.)is to be assisted by the maintenance engineer who shall in addition perform other duties.

WAGES:

Per hour: 07/01/2024

Steel Erection:

Group 1	\$ 81.43
Group 2	76.58
Group 3	58.22

Building Construction:

Group 1	\$ 72.41
Group 2	57.36
Group 3	69.09
Group 4	52.62
Group 5	46.07

Heavy Construction:

Group 1	\$ 57.43
Group 2	58.68
Group 3	108.95
Group 4	84.24

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2024

Building Construction	\$ 30.52* + \$7.40
Steel Erection & Heavy	31.02* + \$7.40

* This portion of benefits is subject to same OT premium as wages.

Non-Worked Holiday Supplemental Benefits:

21.87

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
 Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wages Per Hour:

(1) year terms at the following wage rates:

1st	2nd	3rd	4th.
\$ 38.52	\$ 45.23	\$ 48.70	\$ 52.17

Supplemental Benefits:

Per Hour:
All Terms \$ 16.52* + 7.40

* This portion of benefits is subject to same OT premium as wages.

9-15Ab

Operating Engineer - Building / Heavy&Highway

01/01/2025

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

EQUIPMENT COVERED: Jet-Rodder/Vacuum Truck, Flusher, Sewer Rodder, Stetco Hoist and similar, Sewer Winch/Tugger Hoist and similar, Vacall/Vactor, Closed Circuit Television Inspection Equipment, Chemical Grouting Equipment and similar, John Beame, Meyers and similar.

Per Hour: 07/01/2024

Maintenance Engineer \$ 84.24
(Sewer Systems)

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyman \$ 31.02*
+ \$ 7.40

*This portion of benefits subject to SAME premium as OT wages.

Non-Worked Holiday Supplemental Benefits:
\$ 21.87

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

Per Hour:

(1) year terms at the following wage rates.

1st	2nd	3rd	4th
\$38.52	\$45.23	\$48.70	\$52.17

Supplemental Benefits:

Per Hour:

All Apprentices: \$ 16.52* + \$ 7.40

* This portion of benefits subject to the SAME premium as OT wages

9-15Sewer

Operating Engineer - Building / Heavy&Highway

01/01/2025

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 08/01/2024

Well Driller \$ 41.85 \$ 43.11

Well Driller
Helper \$ 36.26 \$ 37.35

Hazardous Waste Differential
Added to Hourly Wage:
Level A \$ 3.00

Level B	\$ 2.00
Level C	\$ 1.00

Monitoring Well Work

Add to Hourly Wage:

Level A	\$ 3.00
Level B	\$ 2.00

SUPPLEMENTAL BENEFITS

Per Hour:

Well Driller & Helper	10% of straight time rate plus \$ 13.50

Additional \$ 4.25/Hr. for Premium Time Hours Worked

OVERTIME PAY

See (B2, P, S) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6, 16, 23) on HOLIDAY PAGE
Overtime:	See (5, 6, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES

Apprentices at 12 Month Terms

Wages Per Hour:

1st Term	\$ 28.00
2nd Term	\$ 29.00
3rd Term	\$ 30.00

SUPPLEMENTAL BENEFITS

Per Hour:

All Terms	10% of Wage + \$ 13.50

Additional \$4.25/Hr. for premium time hours worked.

4-138well

Operating Engineer - Building & Steel Erection

01/01/2025

JOB DESCRIPTION Operating Engineer - Building & Steel Erection

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour: 07/01/2024

STEEL ERECTION:

Three Drum Derricks	\$ 107.16
Cranes, Two Drum Derricks, Hydraulic Cranes & Fork Lifts,	
Boom Trucks	103.28
Compressors, Welding Machines	63.36
Compressors	60.71
(not combined with welding machines)	

BUILDING CONSTRUCTION:

Cranes, Stone Derrick, Boom Trucks, Hydraulic Cranes,	
	103.62
Double Drum	98.28
4 Pole Hoists and Single	
Drum Hoists	87.78
Fork Lifts, Plaster(Platform Machine)Plaster Bucket, Concrete	
Pumps and all other equipment used for hoisting	
	80.54

*House Cars and Rack & Pinion	71.35

*House Cars (New Projects)	58.47

Erecting and dismantling Cranes	88.64

Compressors, Welding Machines(Cutting Concrete-Tank Work),
Paint Spraying, Sand Blasting, Pumps(With the exclusion of
concrete pumps), House Car (Settlement basis only), All
Engines irrespective of power(Power-Vac)used to drive
auxiliary equipment Air, Hydraulic, etc., Boilers, Jacking System
62.20

APPLICABLE TO BUILDING CATEGORY:

CRANES: Crawler Or Truck

	In Addition To Above Crane Rates
100' to 149' Boom	\$ 1.75/hr
150' to 249' "	\$ 2.00/hr
250' to 349' "	\$ 2.25/hr
350' to 450' "	\$ 2.75/hr
Tower Crane	\$ 2.00/hr

APPLICABLE TO STEEL CATEGORY:

CRANES: Crawler Or Truck

	In Addition To Above Crane Rates
100' to 149' Boom	\$ 2.25/hr
150' to 249' "	\$ 2.50/hr
250' to 349' "	\$ 2.75/hr
350' to 450' "	\$ 3.25/hr
Tower Crane	\$ 2.50/hr

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2024

All Operator Classes \$ 26.15*
plus \$ 6.30

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

OVERTIME PAY

See (*B, **C, ***D, O) on OVERTIME PAGE

*Applies to House Cars and Rack & Pinion after 8 hours worked in a day, Saturday, Sunday and Holidays

**Applies to Building Construction category

***Applies to Steel Erection

HOLIDAY

Paid: See (5, 6, 8, 11, 12, 15, 16, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 12, 15, 16, 25, 26) on HOLIDAY PAGE

Codes 8 and 12 apply ONLY to Steel Erection

Code 16 applies ONLY to Building Construction

REGISTERED APPRENTICES

Wage Per Hour:

Apprentices (1) year terms at the following rates:

	1st	2nd	3rd
07/01/2024	\$ 44.92	\$ 54.40	\$ 63.88

Supplemental Benefits Per Hour:

07/01/2024
Straight Time \$ 15.65*
plus \$ 6.30

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

9-14 B&S

Operating Engineer - Heavy Construction 1

01/01/2025

JOB DESCRIPTION Operating Engineer - Heavy Construction 1

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

(For Groups 23 - 28, see Operating Engineer - Heavy Construction 2)

Group 1: Tower Crane/Climbing Crane

Group 2: Backhoes (Including all track and rubber tire backhoes over 37,000 lbs), Power Shovels, Steel Erection: Hydraulic Clam Shells, Moles and machines of a similar nature
Group 3: Mine Hoists, Cranes, etc, used as Mine Hoists
Group 4: Gradalls, Keystones, Cranes (With digging buckets), Bridge Cranes, Trenching Machines, Vermeer Cutter and machines of a similar nature
Group 5: Pile Drivers and Rigs (Employing Dock-Builders Foreman), Derrick Boats, Tunnel Shovels,
Group 6: All Drills and machines of a similar nature
Group 7: Back-Filling Machines and Cranes, Mucking Machines, Dual Drum Pavers
Group 8: Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power House (Low pressure units)
Group 9: Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoists, Power Houses (Other than above)
Group 10: Concrete Mixer
Group 11: Elevators
Group 12: Concrete Breaking Machines, Single Drum Hoists, Load Masters, Locomotives and Dinkies (Over 10 tons), Hydraulic Crane-Second Engineer
Group 13: On-Site Concrete Plant Engineers, On-Site Asphalt Plant Engineer and Vibratory Console
Group 14: Barrier Mover, Barrier Transport and machines of a similar nature
Group 15: Compressors (Portable, 3 or more), Truck Compressor (Engineer Driver), Tugger Machines, Well Point Pumps, Chum Drill
Group 16: Boilers(High pressure),Compressors, Pumps(River Cofferdam) and Welding Machines(except where arc is operated by another Operating Engineer) Push Button Machines, All Engines, irrespective of power(Power Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.
Group 17: Utility-Horizontal Boring Rig
Group 18: Utility Compressors
Group 19: Paving-Asphalt Spreader, Autogrades (C.M.I.), Roto-Mill
Group 20: Paving-Asphalt Roller
Group 21 Paving-Asphalt Plant
Group 22: Roller (non paving, all sizes)

WAGES:(per hour) 07/01/2024

Group 1	\$ 123.06
Group 2	102.98
Group 3	106.03
Group 4	103.66
Group 5	101.78
Group 6	98.05
Group 7	99.74
Group 8	97.10
Group 9	95.24
Group 10	91.40
Group 11	85.94
Group 12	87.66
Group 13	88.24
Group 14	80.02
Group 15	68.59
Group 16	64.34
Group 17	92.77
Group 18	63.97
Group 19	97.10
Group 20	94.83
Group 21	81.44
Group 22	94.83

Cranes: Crawler or Truck

100' to 149'	\$0.50 per hour additional to above Crane Rates
150' to 249'	\$0.75 per hour additional to above Crane Rates
250' to 349'	\$1.00 per hour additional to above crane Rates
350' to 450'	\$1.50 per hour additional to above crane Rates

SUPPLEMENTAL BENEFITS

Per Hour:

Groups 1-22

Regular Time \$ 26.15* plus \$ 6.30

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

Non-Worked Holiday Supplemental Benefits:

\$ 20.80

OVERTIME PAY

See (D, O) 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

Per Hour:

(1) year terms at the following wage rates:

Groups 1-22	1st	2nd	3rd
	\$ 44.92	\$ 54.40	\$ 63.88

Supplemental Benefits:

Groups 1-22	
Regular Time	\$ 15.65* plus \$ 6.30

* This portion of benefits is subject to the SAME PREMIUM as shown for overtime wages

9-14 HC

Operating Engineer - Heavy Construction 2

01/01/2025

JOB DESCRIPTION Operating Engineer - Heavy Construction 2

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

(For Groups 1 - 22, see Operating Engineer - Heavy Construction 1)

Group 23: Cherry Picker (Over 20 tons), Loader (Over 6 yards)

Group 24: Backhoes and Loaders (Up to 37,000lbs), Bulldozers, Scrapers, Turn-A-Pulls, Tugger Hoists, Tractors, Hysters, Roustabout Cranes, Conveyors, Ballast Regulators (Ride On), Track Removal Machine or similar, Motor Graders, Locomotives (10 tons and under), Curb & Gutter Pavers and machines of a similar nature

Group 25: Post Hole Digger, Ditch Winch, Road Finishing Machines, Rollers (5 tons and under, Dual Purpose Trucks, Forklifts, Dempsey Dumpsters, Fireman

Group 26: Service Engineer (Gradalls, Concrete Pumps, Cold Planers Grader)

Group 27: Service Mechanic (Shovels, Draglines, Crawler Cranes, Backhoes, Trenching Machines, Compressors (3 or more in battery)

Group 28: Steam Equipment Operator (Water rigs, steam shovels, power boilers, derrick boats)

WAGES:(per hour) 07/01/2024

Group 23	\$ 87.05
Group 24	84.62
Group 25	80.57
Group 26	76.47
Group 27	54.57
Group 28	80.57

Cranes: Crawler or Truck

100' to 149'	\$0.50 per hour additional to above Crane Rates
150' to 249'	\$0.75 per hour additional to above Crane Rates
250' to 349'	\$1.00 per hour additional to above crane Rates
350' to 450'	\$1.50 per hour additional to above crane Rates

SUPPLEMENTAL BENEFITS

Per Hour:

Groups 23-28	
Regular Time	31.02* + \$7.40

* This portion of benefits subject to the same OT premium as wages.

Non-Worked Holiday Supplemental Benefits:

21.87

OVERTIME PAY

See (D, O) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

Per Hour:

(1) year terms at the following wage rates:

	1st	2nd	3rd	4th
Groups 23-28	\$38.52	\$45.23	\$48.70	\$52.17

Supplemental Benefits:

Regular Time \$ 16.52* + \$ 7.40

* This portion of benefits subject to same OT premium as wages.

9-15 HC

Operating Engineer - Marine Dredging

01/01/2025

JOB DESCRIPTION Operating Engineer - Marine Dredging

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

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

Per Hour: 07/01/2024

CLASS A1 \$ 45.26

Deck Captain, Leverman,
Mechanical Dredge Operator,
Licensed Tug Operator 1000HP or more.

CLASS A2 40.33

Crane Operator (360 swing)

CLASS B To conform to Operating Engineer
Dozer, Front Loader Prevailing Wage in locality where work
Operator on Land is being performed including benefits.

CLASS B1 39.14

Derrick Operator (180 swing)
Spider/Spill Barge Operator
Operator II, Fill Placer, Engineer
Chief Mate, Electrician, Chief Welder,
Maintenance Engineer, Licensed Boat, Crew Boat Operator

CLASS B2 36.84

Certified Welder

CLASS C1 35.83

Drag Barge Operator,
Steward, Mate,
Assistant Fill Placer

CLASS C2 34.68

Boat Operator

CLASS D 28.81

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

SUPPLEMENTAL BENEFITS

All Class C & D	\$ 11.75 plus 7% of straight time wage, Overtime hours add \$ 0.50

4-25a-MarDredge

01/01/2025

9-15dconsult

01/01/2025

Page 60

Decorator	55.86*
Paperhanger/Wall Coverer	55.09*

*Subtract \$ 0.10 to calculate premium rate.

** To be allocated at a later date.

SHIFT WORK

Counties of Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, and Westchester; Agency/Government mandated off-shift work to be paid at time and one-half the hourly wage.

SUPPLEMENTAL BENEFITS

Per hour:

Paperhanger	\$ 36.73
All others	34.31
Premium	38.28**

**Applies only to "All others" category, not paperhanger journeyworker.

OVERTIME PAY

See (A, E, R) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

One (1) year terms at the following wage rate.

Per hour:	07/01/2024
Appr 1st term...	\$ 20.22*
Appr 2nd term...	25.93*
Appr 3rd term...	31.61*
Appr 4th term...	42.40*

*Subtract \$ 0.10 to calculate premium rate.

Supplemental benefits:

Per Hour:	
Appr 1st term...	\$ 16.89
Appr 2nd term...	20.95
Appr 3rd term...	24.10
Appr 4th term...	30.57

8-NYDC9-B/S

Painter

01/01/2025

JOB DESCRIPTION Painter

DISTRICT 8

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES

Nassau: Atlantic Beach, Ceadershurst, East Rockaway, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave, Rockville is the boundary line up to Lawson Blvd, turning right going west all the above territory. Starting at Union Turnpike & Lakeville Rd going north to northern Blvd. the west side of Lakeville Rd to Northern Blvd. At Northern Blvd doing east the district north of Northern blvd to Port Washington blvd. West of Port Washington blvd to St. Francis Hospital then north of first traffic light to Port Washington & Sands Point, Manor Haven, & Harbour Acres.

WAGES

Per hour:	07/01/2024
Drywall Taper	\$ 57.44

SUPPLEMENTAL BENEFITS

Per Hour:	
Journeyworker:	\$ 25.29

OVERTIME PAY

See (A, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6, 8, 11, 18, 19, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage per hour:

1st term	\$ 22.30
2nd term	28.99
3rd term	34.67
4th term	46.05

Supplemental Benefits per hour:

1st term	\$ 14.35
2nd term	19.83
3rd term	20.93
4th term	23.12

8-NYC9-1974-DWT

Painter - Bridge & Structural Steel

01/01/2025

JOB DESCRIPTION Painter - Bridge & Structural Steel

DISTRICT 8

ENTIRE COUNTIES

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

WAGES

Per Hour:

STEEL:

Bridge Painting: 07/01/2024
\$ 56.00
+ 10.35*

ADDITIONAL \$7.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

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

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (50 hour cap).

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SHIFT WORK

When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker: \$ 12.43
+ 31.55*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (50 hour cap).

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage - Per hour:

Apprentices: (1) year terms.

1st year \$ 22.40
+ 4.14

2nd year	\$ 33.60 + 6.21
3rd year	\$ 44.80 + 8.28
Supplemental Benefits - Per hour:	
1st year	\$ 1.16 + 12.62
2nd year	\$ 7.46 + 18.93
3rd year	\$ 9.94 + 25.24

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

8-DC-9/806/155-BrSS

Painter - Metal Polisher

01/01/2025

JOB DESCRIPTION Painter - Metal Polisher

DISTRICT 8

ENTIRE COUNTIES

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

WAGES

	07/01/2024
Metal Polisher	\$ 39.33
Metal Polisher*	40.43
Metal Polisher**	43.33

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024

Journeyworker:

All classification	\$ 12.79

OVERTIME PAY

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

HOLIDAY

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

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

REGISTERED APPRENTICES

Wages per hour:

One (1) year term at the following wage rates:

	07/01/2024
1st year	\$ 19.67
2nd year	21.63
3rd year	23.60
1st year*	\$ 22.06
2nd year*	22.07
3rd year*	24.14
1st year**	\$ 22.17
2nd year**	24.13
3rd year**	26.10

*Note: Applies on New Construction & complete renovation

** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:
Per hour:

1st year	\$ 8.69
2nd year	8.69
3rd year	8.69

8-8A/28A-MP

Plasterer

01/01/2025

JOB DESCRIPTION Plasterer

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per hour:

	07/01/2024	08/01/2024
Building:		
Plasterer/Traditional &	\$ 47.72	\$ 47.99
Spraying Fireproofing	+ \$5.00*	+ \$5.62*

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker	\$ 25.35	\$ 26.10

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

*This portion is not subjected to OT premiums.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE

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

REGISTERED APPRENTICES

	07/01/2024	08/01/2024
Wages:		
(Per hour)		
800 hours term:		
1st term	\$ 19.30 + 0.68*	\$ 19.44+ 0.68*
2nd term	22.53 + 0.81*	22.69+ 0.81*
3rd term	25.79 + 0.95*	25.98+ 0.95*

*This portion is not subjected to OT premiums.

Supplemental Benefits:

(Per hour):

(800) hours term:

1st term	\$ 11.59	\$ 11.95
2nd term	12.02	12.44
3rd term	12.52	13.08

9-262

Plumber

01/01/2025

JOB DESCRIPTION Plumber

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

	07/01/2024
Plumber	\$ 74.95
Temporary Service**	\$ 60.04

** Temporary Service- Includes Maintenance of cooling & heating apparatus, maintenance work on pneumatic systems during the construction period, and work on temporary heat. All hours paid at straight time, including holidays.

****THERE ARE NO HELPERS UNDER THIS CLASSIFICATION.**

On tower work, bridges, elevated highway, or buildings, where pipe is being installed, fifty (50) or more feet vertically in a free drop from its base, an additional \$1.00 per hour.

SHIFT WORK

Shift work, when directly specified in public agency or authority contract documents, and continues for a period of not less than ten (10) consecutive work days. A shift shall consist of seven(7) hours with one-half (1/2) hour for lunch after the first four (4) hours of each shift. A premium of thirty percent (30%) for wages and supplemental benefits on shift work performed Monday through Friday on the 4 P.M. and midnight shifts.

For shift work performed on weekends the shift premium shall be fifty percent (50%) of wages and supplemental benefits.

For shift work performed on holidays designated below, double time wages and supplemental benefits shall be paid. Also noted that the normal workday Monday through Friday 8:00 A.M. to 3:00 P.M. is not considered shift work, and therefore not subject to shift premium.

SUPPLEMENTAL BENEFITS

Per hour:

Plumber \$ 43.00

Temporary
Service \$ 34.32

OVERTIME PAY

See (C, *D, O, V) on OVERTIME PAGE

*Where the plumbing contract price is one and one half million dollars (\$1,500,000.00) or less, code D applies.

HOLIDAY

Plumber
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE.
Repairs & Maintenance
Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Wages per hour:

(1/2) year terms at the following wage:

1st	2nd	3rd&4th	5th&6th	7th&8th	9th	10th
\$ 19.00	\$ 21.00	\$ 30.22	\$ 32.32	\$ 35.17	\$ 36.57	\$ 48.64

Supplemental Benefits:

(1/2) year term at the following dollar amount:

1st	2nd	3rd-10th
\$ 5.43	\$ 6.43	\$ 22.73

9-1 Const

Plumber - Pump & Tank: Oil Trades Installation & Maintenance

01/01/2025

JOB DESCRIPTION Plumber - Pump & Tank: Oil Trades Installation & Maintenance

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

07/01/2024

Pump & Tank \$ 73.00

SUPPLEMENTAL BENEFITS

Per hour:

Plumber \$ 32.81

OVERTIME PAY

Pump & Tank See (B, F, H) on OVERTIME PAGE.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE.

Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE.

9-1-P&T

Plumber - Repairs & Maintenance

01/01/2025

JOB DESCRIPTION Plumber - Repairs & Maintenance

DISTRICT 9

ENTIRE COUNTIES

Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:

Repairs & Maintenance 07/01/2024
\$ 48.20

*Repair & Maintenance work is any repair and/or replacement of present plumbing system that does not change existing roughing or water supply lines. Projects regardless of work type which have approved plans and specifications wherein the plumbing exceeds \$725,000 are excluded.

SUPPLEMENTAL BENEFITS

Per hour:

Repair \$ 21.36
Maintenance

OVERTIME PAY

Repairs & Maintenance See (B, H) on OVERTIME PAGE.

HOLIDAY

Repairs & Maintenance
Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES

Note: The Repairs & Maintenance Category has NO Apprentices.

9-1 R&M

Roofer

01/01/2025

JOB DESCRIPTION Roofer

DISTRICT 9

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024

Roofer/Waterproofer \$ 48.50
+ \$7.00*

* This portion is not subjected to overtime premiums.

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

SUPPLEMENTAL BENEFITS

Per Hour: \$ 31.87

OVERTIME PAY

See (B, H) on OVERTIME PAGE

Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY

Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

(1) year term apprentices indentured prior to 01/01/2023

1st	2nd	3rd	4th
\$ 16.97	\$ 24.25	\$ 29.10	\$ 36.37
	+ 3.50*	+ 4.20*	+ 5.26*

Supplements:

1st	2nd	3rd	4th
\$ 4.10	\$ 16.17	\$ 19.31	\$ 24.02

* This portion is not subjected to overtime premiums.

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

	1st	2nd	3rd	4th	5th
	\$ 18.43	\$ 21.82	\$ 24.25	\$ 29.10	\$ 36.37
		+ 3.16*	+ 3.50*	+ 4.20*	+ 5.26
Supplements:					
	1st	2nd	3rd	4th	5th
	\$ 7.73	\$ 14.59	\$ 16.17	\$ 19.31	\$ 24.02

* This portion is not subjected to overtime premiums.

9-8R

Sheetmetal Worker	01/01/2025

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour:

07/01/2024

08/01/2024

Sign Erector

\$ 58.00

\$ 60.00

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

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2024

08/01/2024

Sign Erector

\$ 57.12

\$ 58.31

OVERTIME PAY

See (B, F, S) on OVERTIME PAGE

HOLIDAY

Paid:

See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

Overtime:

See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:

6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS

Per Hour:

07/01/2024

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 18.27	\$ 20.75	\$ 25.22	\$ 25.70	\$ 34.66	\$ 37.74	\$ 41.65	\$ 44.78	\$ 47.93	\$ 51.04

08/01/2024

\$ 18.65	\$ 21.16	\$ 23.69	\$ 26.22	\$35.39	\$ 38.52	\$ 42.55	\$ 45.75	\$ 48.96	\$ 52.15 4-137-SE

Sheetmetal Worker	01/01/2025

JOB DESCRIPTION Sheetmetal Worker

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour:

07/01/2024

Sheetmetal Worker

\$ 61.09

Maintenance of Fans
Temporary Operation

48.87

SUPPLEMENTAL BENEFITS

Per Hour:

Sheetmetal Worker

\$ 53.25

Maintenance Worker 53.25

OVERTIME PAY

See (B, E, E2, Q, V) on OVERTIME PAGE
For Maintenance See Codes B,E, Q & V

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES

Per Hour:Wages

Six(6) Month Terms As Follows:

1st & 2nd Term	\$ 21.26
3rd & 4th Term	27.39
5th & 6th Term	33.52
7th & 8th Term	42.75
9th Term	48.55

Per Hour: Supplemental Benefits

1st & 2nd Term	\$ 19.66
3rd & 4th Term	26.73
5th & 6th Term	31.57
7th & 8th Term	38.78
9th Term	43.62

4-28

Steamfitter

01/01/2025

JOB DESCRIPTION Steamfitter

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 01/01/2025

AC Service/Heat Service & Refrigeration	\$ 46.10	\$ 46.60

Refrigeration, A/C, Oil Burner and Stoker Service and Repair.

NOTE: Refrigeration Compressor installation. (Not to exceed 5 Hp combined on any one project).

NOTE: Air / Heating Compressor installation.(Not to exceed 15 tons combined on any one project).

SUPPLEMENTAL BENEFITS

Per Hour Worked:

AC Service/Heat Service & Refrigeration	\$ 20.96	\$ 22.91
Per hour Paid:	\$ 17.65	\$ 19.65

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

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

REGISTERED APPRENTICES

1 year terms

Wages per hour:

1st Term	\$ 22.31	\$ 22.55
2nd Term	26.94	27.23
3rd Term	31.38	31.72
4th Term	37.90	38.31

Benefits per hour worked:

1st Term	\$ 14.44	\$ 14.93
2nd Term	15.91	16.43
3rd Term	17.41	17.99
4th Term	19.44	20.10

Benefits per hour paid:

1st Term	\$ 11.38	\$ 11.87
2nd Term	12.85	13.37
3rd Term	14.35	14.93
4th Term	16.38	17.04

4-638B-StmFtrRef

Steamfitter

01/01/2025

JOB DESCRIPTION Steamfitter

DISTRICT 4

ENTIRE COUNTIES

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

WAGES

Per Hour: 07/01/2024 10/1/2024 03/31/2025

Sprinkler/Steam \$ 69.11 \$ 69.86 Additional
AC/Heat Fitter \$0.75/Hr*

Temporary 52.54 53.11 Additional
Heat & AC \$0.75/Hr*
Fitter

SHIFT WORK

Add 15% to Hourly Wage and Hourly Supplemental Benefit for "Contracting Agency" Mandated Off Shift Work.

SUPPLEMENTAL BENEFITS

Per Hour:

Sprinkler/Steam \$ 53.49
Fitter

Temporary 43.67
Heat & AC
Fitter

OVERTIME PAY

Note: The posted overtime rates are applicable after 8 hours plus Saturday, Sunday and Holidays:

Per Hour:
Wages 07/01/2024 10/01/2024
Sprinkler/Steam \$ 138.22 \$ 139.72
Temp Heat/AC 105.08 106.22

Supplemental Benefits
Sprinkler/Steam 105.99 106.84
Temp Heat/AC 85.35 87.34

HOLIDAY

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

REGISTERED APPRENTICES

Per hour:

WAGES

1 year Terms	1st	2nd	3rd	4th	5th
07/01/2024	\$ 27.98	\$ 34.96	\$ 41.94	\$ 48.92	\$ 55.90

Supplemental Benefits	07/01/2024	21.80	27.05	32.28	37.53	42.76
10/01/2024	22.10	27.42	32.73	38.05	43.36	

Premium Time Supplemental Benefits

07/01/2024	43.60	54.10	64.56	75.06	85.52
10/01/2024	43.36	53.94	64.52	77.01	85.68

4-638A-StmSpFtr

Teamster - Heavy Construction**01/01/2025**

JOB DESCRIPTION Teamster - Heavy Construction**DISTRICT** 4**ENTIRE COUNTIES**

Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour:

Dump Trucks/Drivers (Debris Removal, Street Level and below)
07/01/2024

Dump Trucks	\$ 44.165
Tractor Trailers	47.315
Euclid/Turnapull	47.88

SUPPLEMENTAL BENEFITS

Per Hour:

Dump Trucks	\$ 59.1525
All Others	56.9025
Up to 40 Hours Worked	

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

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

Note: Employees receive 2 hours of Holiday Pay for each day worked in holiday week (not to exceed 8 hours)

Note: Employees receive 5 1/3 hours of Holiday Pay for each day worked in Thanksgiving Holiday Week.

4-282

Welder**01/01/2025**

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 07/01/2024

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

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

OVERTIME PAY**HOLIDAY**

1-As Per Trade

Overtime Codes

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

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

- (AA) Time and one half of the hourly rate after 7 and one half hours per day
- (A) Time and one half of the hourly rate after 7 hours per day
- (B) Time and one half of the hourly rate after 8 hours per day
- (B1) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.
Double the hourly rate for all additional hours
- (B2) Time and one half of the hourly rate after 40 hours per week
- (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) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- (E5) Double time after 8 hours on Saturdays
- (F) Time and one half of the hourly rate on Saturday and Sunday
- (G) Time and one half of the hourly rate on Saturday and Holidays
- (H) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- (I) Time and one half of the hourly rate on Sunday
- (J) Time and one half of the hourly rate on Sunday and Holidays
- (K) Time and one half of the hourly rate on Holidays
- (L) Double the hourly rate on Saturday
- (M) Double the hourly rate on Saturday and Sunday
- (N) Double the hourly rate on Saturday and Holidays
- (O) Double the hourly rate on Saturday, Sunday, and Holidays
- (P) Double the hourly rate on Sunday
- (Q) Double the hourly rate on Sunday and Holidays
- (R) Double the hourly rate on Holidays

- (S) Two and one half times the hourly rate for Holidays
- (S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- (T) Triple the hourly rate for Holidays
- (U) Four times the hourly rate for Holidays
- (V) Including benefits at SAME PREMIUM as shown for overtime
- (W) Time and one half for benefits on all overtime hours.
- (X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

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

OVERTIME Holiday Pay:

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

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

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

(29) Juneteenth

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

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

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

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

This Form Must Be Typed

Submitted By:

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

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

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

Telephone

Fax

E-Mail:

2. NY State Units (see Item 5).

☐ 01 DOT

☐ 02 OGS

☐ 03 Dormitory Authority

☐ 04 State University
Construction Fund

☐ 05 Mental Hygiene
Facilities Corp.

☐ 06 OTHER N.Y. STATE UNIT

☐ 07 City

☐ 08 Local School District

☐ 09 Special Local District, i.e.,
Fire, Sewer, Water District

☐ 10 Village

☐ 11 Town

☐ 12 County

☐ 13 Other Non-N.Y. State
(Describe)

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

Telephone

Fax

E-Mail:

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

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR
THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title

Description of Work

Contract Identification Number

Note: For NYS units, the OSC Contract No.

6. Location of Project:

Location on Site

Route No/Street Address

Village or City

Town

County

7. Nature of Project - Check One:

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

8. OCCUPATION FOR PROJECT :

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

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

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

10. Name and Title of Requester

Signature



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

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

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

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

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

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

For inquiries please call 518-457-5589.

NYSDOL Bureau of Public Work Debarment List 12/20/2024

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	DOL		AKHLAQ OULAKH		4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL	*****8387	AMERICAN PAVING & MASONRY, CORP.		8 FOREST AVE GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL	*****8654	AMERICAN PAVING, INC.		8 FORREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO STANCO		8 FOREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL		B&L RENOVATION CO.		618 OCEAN PARKWAY APT A6BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025
DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTI ON	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	NYC		CHARLES ZAHRAKKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****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

NYSDOL Bureau of Public Work Debarment List 12/20/2024

Article 8

DOL	DOL	****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		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		DINA TAYLOR		64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL	****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EMIL KISZKO		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	****3298	EMJACK CONSTRUCTION CORP.		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	****3298	EMJACK CONSTRUCTION LLC		4192 SIR ANDREW CIRCLE DOYLESTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		EUGENIUSZ "GINO" KUCHAR		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	****2998	G.E.M. AMERICAN CONSTRUCTION CORP.		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		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		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	****2397	ISLAND BREEZE MARINE, INC.		6400 BALTIMORE NATIONAL CANTONSVILLE MD 21228	10/24/2024	10/24/2029
DOL	DOL	****9211	J. WASE CONSTRUCTION CORP.		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.M.J CONSTRUCTION		151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027

NYSDOL Bureau of Public Work Debarment List 12/20/2024

Article 8

DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
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

NYSDOL Bureau of Public Work Debarment List 12/20/2024

Article 8

DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		KMA GROUP II, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL	*****1833	KMA GROUP INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KMA INSULATION, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KRIN HEINEMANN		2345 ROUTE 52, SUITE 2N HOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	NYC		KULWANT S. DEOL		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		MAQSOOD AHMAD		618 OCEAN PKWY BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL	*****7790	NATIONAL BUILDING & RESTORATION CORP		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****1797	NATIONAL CONSTRUCTION SERVICES, INC		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	NYC		NAVIT SINGH		402 JERICO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NELCO CONTRACTING, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DA		NICHOLAS T. ANALITIS		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026

NYSDOL Bureau of Public Work Debarment List 12/20/2024

Article 8

DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	*****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS		8269 21ST ST BELLEROSSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	*****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL		ROBBYE BISSEAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL	*****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DA		SILVANO TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	*****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026

NYSDOL Bureau of Public Work Debarment List 12/20/2024

Article 8

DOL	DOL	****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL	****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED 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		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL	****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL	****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	****2426	THE MATRUKH GROUP, INC.		4307 28TH AVE PO BOX 9082ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		TIMOTHY PERCY		29807 ANDREWS ROAD BLACK RIVER NY 13612	10/17/2023	10/17/2028
DOL	DA	****1050	TRI STATE CONSTRUCTION OF NY CORP.		50-39 175TH PLACE FRESH MEADOWS NY 11365	03/28/2022	03/28/2027
DOL	DA	****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL		VINCENT CORRAO		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL	****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL		WILLIAM SCRIVENS		4192 SIR ANDREW CIRCLE DOYELSTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

EXHIBIT C: SPECIFICATIONS

SECTION 000110 – TABLE OF CONTENTS

DIVISION 01 — GENERAL REQUIREMENTS

011000	SUMMARY
012100	ALLOWANCES
012200	UNIT PRICES
012300	ALTERNATES
012500	SUBSTITUTION PROCEDURES
013101	RFI
014000	QUALITY REQUIREMENTS
016000	PRODUCT REQUIREMENTS
017300	EXECUTION
019000	ROOFING CLOSE-OUT

DIVISION 02 — EXISTING CONDITIONS

020610	SELECTIVE ROOF DEMOLITION & REMOVALS

DIVISION 04 — MASONRY

040120.63	BRICK MASONRY REPAIR

DIVISION 05 — METALS

055000	METAL FABRICATIONS

DIVISION 06 — WOOD, PLASTICS, AND COMPOSITES

061000	ROUGH CARPENTRY

DIVISION 07 — THERMAL AND MOISTURE PROTECTION

072726	FLUID-APPLIED MEMBRANE AIR BARRIERS
074616	ALUMINUM SIDING
075210	INSULATED MODIFIED BITUMEN ROOFING
075300	PROTECTED MODIFIED BITUMEN ROOFING
075900	LEAK DETECTION SYSTEM
076200	METAL FLASHING & TRIM
077236	AUTOMATIC SMOKE VENTS
078413	PENETRATION FIRESTOPPING
079200	JOINT SEALANTS

DIVISION 09 — FINISHES

099600	HIGH-PERFORMANCE COATINGS

DIVISION 26 — ELECTRICAL

260500	COMMON WORK RESULTS FOR ELECTRICAL

FIT - HAFT ROOF REPLACEMENT
FASHION INSTITUTE OF TECHNOLOGY
NEW YORK, NY

57-23140-01
FEBRUARY 28, 2025
ISSUE FOR BID – C1668

260503	DEMOLITION OF ELECTRICAL SYSTEMS
260519	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
260526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
260529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
260533	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
260553	IDENTIFICATION FOR ELECTRICAL SYSTEMS
262416	PANELBOARDS
263100	PHOTOVOLTAIC COLLECTORS
265100	LIGHTING

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Project information.
- 2. Work covered by Contract Documents.
- 3. Access to site.
- 4. Indoor Air Quality during construction.
- 5. Coordination with occupants.
- 6. Work restrictions.
- 7. Specification and drawing conventions.
- 8. Correlation and Intent of the Contract Documents
- 9. Miscellaneous provisions.
 - a. Request for Interpretation.
 - b. Proposal Request.

1.3 PROJECT INFORMATION

- A. Project Identification: **Fashion Institute of Technology**
- B. Haft Roof Renovations
- C. 243 West 27th Street
- D. New York, NY 10001
- E. Owner: Fashion Institute of Technology (FIT)
 - 1. **Owner's Representative: Allen King**
 - 2. Tel: 212-219-4424

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Scope of Work for this Project generally consists of the following:

1. Roofing removal and replacement work shall be coordinated with interior renovations being performed under separate contract, C1651
 - a. The interior renovation contractor will provide and install (1) new exhaust fan & (2) new compressors on the roof.
 - b. The Roofing Contractor shall provide all waterproofing details to maintain watertight construction.
 2. Asbestos containing material removal will be removed by the owner and the work shall be coordinated with the Roofing Contractor – See plan for locations
 3. The Roofing Contractor shall be responsible for maintaining watertightness throughout the performance of the work.
 4. Remove lightgaurd pavers, protection board, roofing membrane, roof insulation board, and base sheet down to the surface of the poured concrete roof decks and adjoining vertical flashing surfaces.
 5. Remove sheet metal flashings completely as indicated on the Drawings.
 6. Install a new roofing system,: an Inverted Roof Membrane Assembly (“IRMA”) system at the main roof and (2) bulkhead roofs - see Roof Plan for Roof Area designations.
 7. Install a new roofing system,: a Conventional system at the connector roof – see Roof Plan for Roof Area Designations.
 8. The roofing system includes related membrane and metal flashings.
 9. Drain bodies shall remain in place. Fixed drain extensions shall be installed.
 10. New scuppers shall be cut through existing masonry curbs.
 11. Provide and install new steel guardrails – see plan for locations.
 12. Provide and install a new light fixture – see plan for location
 13. Provide
 14. Existing skylight – shall be removed in its entirety to the concrete curb and replaced with a new smoke hatch sized for the existing opening.
 15. Existing supply fans – shall be reset on new blocking and flashing
 16. Existing exhaust fans – shall be replaced and installed on new blocking and flashing.
 17. Existing access provisions between Roof Areas – steel ladders– shall be refinished and reinstalled.
 18. Existing access provisions from the catwalk below – Caged steel ladder shall be removed, and a new steel ladder shall be installed.
- B. Types of Contracts: Project will be constructed a single Prime Contract.
- C. Prime Contractor: Work in the Prime Contract includes, but is not limited to, the following:
1. Roofing work.
 2. General trades work.
 3. Electrical work.
 4. Remaining work not identified as work under other contracts.
 5. Selective demolition and cutting and patching not identified as work under other contracts.
- D. Temporary facilities and controls in the Prime Contract include, but are not limited to, the following:

1. Temporary facilities and controls that are not otherwise specifically assigned to the Electrical Contract.
2. Unpiped temporary toilet fixtures (if Owner's facilities are not available for use), wash facilities, and drinking water facilities, including disposable supplies.
3. General waste disposal facilities.
4. Barricades, warning signs, and lights.
5. Security enclosure and lockup.
6. Environmental protection.
7. Restoration of Owner's existing facilities used as temporary facilities.
8. Staging and scaffolding.

1.5 PROJECT COORDINATION

A. Prime Contractor coordination activities of Project include, but are not limited to, the following:

1. Provide overall coordination of the Work, including that of owner's contracts at jobsite.
2. Coordinate compliance with FIT's fire safety requirements during construction.
3. Coordinate shared access to workspaces.
4. Coordinate product selections for compatibility.
5. Provide overall coordination of temporary facilities and controls.
6. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
7. Coordinate construction and operations of the Work with work performed by each Contract.
8. Coordinate sequencing and scheduling of the Work. Include the following:
 - a. Initial Coordination Meeting: At earliest possible date, arrange and conduct a meeting with contractors for sequencing and coordinating the Work; negotiate reasonable adjustments to schedules.
 - b. Prepare a combined contractors' construction schedule for entire Project. Base schedule on preliminary construction schedule. Secure time commitments for performing critical construction activities from contractors. Show activities of each contract on a separate sheet. Prepare a simplified summary sheet indicating combined construction activities of contracts.
 - 1) Submit schedules for approval.
 - 2) Distribute copies of approved schedules to contractors.
9. Provide photographic documentation.
10. Provide quality-assurance and quality-control services.
11. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
12. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
13. Provide progress cleaning of common areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
14. Coordinate cutting and patching.
15. Coordinate protection of the Work.
16. Coordinate firestopping.

17. Coordinate completion of interrelated punch list items.
 18. Coordinate preparation of Project record documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
 19. Print and submit record documents if installations by more than one contractor are indicated on the same contract drawing or shop drawing.
 20. Collect record Specification Sections from contractors, collate Sections into numeric order, and submit complete set.
 21. Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
- B. Each Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of the Work. Each Contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
 2. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each contract for its own work.
 3. Furnishing of access panels for the work of each contract shall be the work of each contract for its own work. Installation of access panels shall be the work of each contract for its own work.
 4. Painting for the work of each contract shall be the work of the General Construction Contract.
 5. Cutting and Patching: Provided under each contract for its own work.
 6. Through-penetration firestopping for the work of each contract shall be provided by each contract for its own work.
- C. Temporary facilities and controls in the Prime Contractors Contract include, but are not limited to, the following:
1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
 3. Temporary enclosures for its own construction activities.
 4. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
 5. Progress cleaning of work areas affected by its operations on a daily basis.
 6. Secure lockup of its own tools, materials, and equipment.
 7. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
 8. FIT's fire safety requirements during construction.

1.6 ACCESS TO SITE

- A. Prime Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. 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.
 - 1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- D. Connections to Electrical Equipment and Systems: Contractor is not permitted to tie into electrical equipment or systems until the FIT Facilities Management Department has reviewed and approved the connection.
 - 1. Submit written procedures to the Owner's Representative, detailing the proposed connection Work.
 - 2. After procedures have been approved, notify the Owner's Representative at least three working days prior to the connection Work so that arrangements can be made to have a FIT Facilities Management Department Representative witness the Work.

1.7 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas where work is being performed. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: As indicated in Owner's General Requirements.

1. Unless noted otherwise, Work is to be performed between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, legal and union holidays excluded.
2. Major mobilization if required is to be performed at night, between the hours of 9:00 p.m. to 6:00 a.m., Monday through Friday.
3. All work conducted which causes significant noise that is considered a disturbance to the school shall be conducted, at contractor's expense, during the time period between 9:00 p.m. and 6:00 a.m. Work considered to be a disturbance or a disruption to the school includes but is not necessarily limited to roof materials loading, roofing removal, scarification, and mechanical fastening operations.
4. Hours for Utility Shutdowns: As approved in writing by Owner with not less than 72 hours' notice. Shutdowns shall be conducted, at contractor's expense, during the time period between 10:00 p.m. and 6:00 a.m.
5. Hours for Core Drilling: As approved in writing by Owner with not less than 72 hours notice. Core drilling shall be conducted, at Contractor's expense, during the time period between 10:00 p.m. and 6:00 a.m.
6. 24 Hour Access: The Owner will make the work site available as needed, including three shifts (24 hour access) as coordinated and approved in writing by Owner. All additional costs associated with work outside of normal business working hours shall be accounted for in the Contractor's bid.
7. Weekend Hours: As approved in writing by Owner.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, any level of odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than 72 hours in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- G. Employee Identification: Comply with the Facility's Visitor Identification Policy. A copy of the current policy will be distributed at the initial job meeting.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.10 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

- A. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work by the Contractor. The contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

- B. In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by Addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.
- C. If an item is shown on the Drawings but not specified, the Contractor shall provide the item of the same quality as similar items specified, as determined by the Architect. If an item is specified but not shown on the Drawings, it shall be located as directed by the Architect.
- D. The Drawings are indications of the design intent as well as specific instructions. The "details" included on Drawings show the intent of all similar areas. If questions arise about the construction of an area not specifically detailed, consult with the Architect who will provide further "details" and instructions. Such further documentation, if consistent with the Contract Documents, shall not alter the Contract Sum.
- E. If the Contractor, in the course of construction, finds any conflict, error, or discrepancy on or between the Drawings and Specifications or any of the related Contract Documents, such conflict, error, or discrepancy shall be immediately referred to the Architect, in writing. Architect shall issue an interpretation, in writing, to the Contractor within (10) days after receipt of the written request. No additional compensation will be paid to the Contractor as a result of an interpretation of the Contract Documents.

1.11 MISCELLANEOUS PROVISIONS

- A. Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Request for Interpretation (RFI):
 - 1. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form bound in the Project Manual.
 - 2. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow five working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 - 3. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
 - 4. On receipt of Architect's action, update RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within five days if contractor disagrees with response.
- C. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

- a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
- b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
- c. Include costs of labor and supervision directly attributable to the change.
- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- e. Use form acceptable to Architect.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 MANUFACTURER'S WARRANTY

- A. Furnish a 25-year Full System No-Dollar-Limit warranty against material and installation workmanship deficiencies, covering the full cost of materials and labor necessary to correct the deficiencies, for the IRMA and Conventional roof systems.
 1. The full system includes all materials produced by the Manufacturer.
 2. The warranty for the IRMA system shall include a provision whereby the Manufacturer is responsible for the cost of removing and restoring overburden components (drainage mat, insulation, fabric mat, pedestals, pavers) to investigate and repair a deficiency covered under the warranty.
 3. The warranty shall also include the manufactured coping and fascia assemblies included in this project.

3.2 CONTRACTOR'S GUARANTEE

- A. Furnish a 5-year guarantee covering performance and costs of correction of deficiencies in the materials installed by the Roofing Contractor and in the workmanship in installing them.
- B. Required Bonds: Labor & Material, and Performance.
- C. No maintenance guarantee or maintenance bond is required.

PART 4 - END OF SECTION 011000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
 - 1. Quantity allowances.
- C. Related Requirements:
 - 1. Section 012200 "Unit Prices" for procedures for using unit prices, including adjustment of quantity allowances when applicable.
 - 2. Section 014000 "Quality Requirements" for procedures governing the use of allowances for field testing by an independent testing agency.

1.3 DEFINITIONS

- A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.5 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 UNIT-COST ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, required maintenance materials, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
 - 3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.

4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs due to a change in the scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Quantity Allowance: Include 500 square feet. of unsatisfactory bricks requiring repair as specified in Section 040120.63 "Brick Masonry Repair"
 1. Coordinate quantity allowance adjustment with unit-price requirements in Section 012200 "Unit Prices."

END OF SECTION 012100

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for procedures for using unit prices to adjust quantity allowances.
 - 2. Section 014000 "Quality Requirements" for field testing by an independent testing agency.

1.3 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the Part 3 "Schedule of Unit Prices" Article contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1 – Brick Masonry Repair

1. Description: After removal of ACM, observe the amount of unsatisfactory bricks that require replacement beyond those listed in the drawings in accordance with Section 040120.63 "Brick Masonry Repair"
2. Unit of Measurement: Per Square Foot inclusive of cubic feet of mortar required
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."

END OF SECTION 012200

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use facsimile of form provided in Project Manual.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific

- features and requirements indicated. Indicate deviations, if any, from the Work specified.
- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012500

 DLRGROUP REQUEST FOR INTERPRETATION

Client:
Project:
Comm. No.:
File No.:

DATE:
INITIATED BY:
DIRECTED TO:
RE:

RFI NO.:

SUBJECT:

SIGNED:

REPLY:

The Work shall be carried out in accordance with the supplemental information or clarifications included in the Reply and issued in accordance with the Contract Documents without change in the Contract Sum or Contract Time. Proceeding with the Work in accordance with the Reply indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.

Where the Reply requires a change to the Contract Sum or Contract Time, submit a detailed breakdown indicating the increased sum or time required. Proceed with the Reply ONLY when the Owner and the Architect give written authorization for the change to the Contract Sum or Contract Time.

REPLY ISSUED
BY:

FIRM:

DATE:

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
 - D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
 1. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as part of permanent construction, consisting of multiple products, assemblies, and subassemblies.
 - E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
 - F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
 - G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.
 - H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
 - I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
 - J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.
- 1.4 DELEGATED-DESIGN SERVICES
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior mockups.
 - 1. Include plans, sections, and elevations, indicating materials and size of mockup construction.
 - 2. Indicate manufacturer and model number of individual components.
 - 3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.
- B. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.7 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.

5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

- E. Reports: Prepare and submit certified written reports and documents as specified.
- F. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, telephone number, and email address of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.

8. Provide to Architect copy of Manufacturer's Technical Representative's written report to Contractor of each inspection performed by Representative. Include copy of report with other documents required for monthly payment request, for each inspection performed during that monthly period.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

- G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups of size indicated.
 - 2. Build mockups in location indicated or, if not indicated, as directed by Architect.
 - 3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
 - 5. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 8. Demolish and remove mockups when directed unless otherwise indicated.

- K. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 - 2. Payment for these services will be made from testing and inspection allowances, as authorized by Change Orders.
 - 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 - 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 - 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections.
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.

- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.
 - 1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

- a. Name of product and manufacturer.
- b. Model and serial number.
- c. Capacity.
- d. Speed.
- e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.
 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 6. Protect stored products from damage and liquids from freezing.
 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.
- B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."
7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 - 2. Evidence that proposed product provides specified warranty.
 - 3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 4. Samples, if requested.
- B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Installation of the Work.
 - 2. Cutting and patching.
 - 3. Progress cleaning.
 - 4. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for limits on use of Project site.
 - 2. Section 020610 "Selective Roof Demolition & Repairs" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.

5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

- a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

- a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Plumbing piping systems.
 - f. Mechanical systems piping and ducts.
 - g. Control systems.
 - h. Communication systems.
 - i. Fire-detection and -alarm systems.
 - j. Conveying systems.
 - k. Electrical wiring systems.
 - l. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

- a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.

- e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
- 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 4. Verify existing structural members for replacement to verify if material is suitable for reuse.

- B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.

3.5 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.

- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 019000 - ROOFING CLOSE-OUT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

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

1.02 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the contract close- out, including, but not limited to, the following:
 - 1. Punch list.
 - 2. Contractors' affidavit and certification.
 - 3. Material Manufacturers' certification.
 - 4. Warranties and guarantees.
 - 5. Project record documents.

1.03 PUNCH LIST

- A. Contractor
 - 1. Submit written declaration to Consultant that project is substantially complete.
 - 2. Submit list of items to be completed and corrected (punch list).
- B. Owner, Consultant, and Contractor will make preliminary inspection after receipt of Contractor's declaration and punch list.
- C. Should Owner and Consultant consider that work is substantially complete:
 - 1. Consultant will add to the punch list items to be completed or corrected, in addition to those items listed by the Contractor, as determined by the inspection.
 - 2. Consultant will prepare and issue a final field observation report, containing:
 - a. Punch list of items to be completed or corrected.
 - b. The time within which Contractor shall complete and correct work of listed items.
- D. Contractor to complete work listed for completion or correction within designated time.

1.04 FINAL INSPECTION

- A. Contractor shall submit written declaration to Owner and Consultant, signed by an officer of the corporation, that:
 - 1. All aspects of Contract Documents have been complied with.
 - 2. All items identified on field observation reports have been completed.
 - 3. All items on the substantial-completion punch list have been completed.
 - 4. All tools, construction equipment, and surplus materials have been removed from the site.
 - 5. Project site has been cleaned and restored to pre-construction condition.
 - 6. The Owner, Consultant, and Contractor will make final inspection to ensure completion of all contract requirements.
- B. When the Consultant considers that work is finally complete in accordance with Contract Document requirements, the Consultant will process close-out documents prior to issuing final Certificate of Payment.
- C. Contractor shall submit sign-off by Special Inspection Contractor when and where such an entity is engaged by Owner, in accordance with requirements of the International Code Council (ICC) including amendments per local Building Code.

1.05 PROJECT RECORD DOCUMENTS

- A. As the work progresses, keep a complete and accurate record of changes or deviations from the Contract Documents and the shop drawings, indicating the work as actually installed.
 - 1. Changes shall be neatly and correctly shown on the respective portions of the affected document, using black line prints of the drawings affected, or the specifications, with appropriate supplementary notes.
 - 2. The records above shall be arranged in order, in accordance with the various sections of the Specifications, and properly indexed.
 - 3. This record set of drawings, shop drawings, and specifications shall be kept at the job site for inspection by the Consultant and Owner.
 - 4. Provide log of all change orders in accordance with AIA Documentation.
- B. At the completion of the work, certify that each of the revised prints of the drawings and Specifications is complete and accurate.

- C. Prior to application for final payment, and as a condition to its approval by the Owner, deliver minimum three (3) copies of the record drawings and specifications, arranged in proper order, indexed, and certified as herein before specified to the Consultant. Provide suitable transfer cases and deliver the records herein, indexed and marked for each division of the Work.
- D. No review or receipt of such records by the Consultant or Owner shall be a waiver of any deviation from the Contract Documents or the shop drawings, or in any way relieve the Contractor from his responsibility to perform the work in accordance with the Contract Documents and the shop drawings to the extent that they are in accordance with the Contract Documents.

1.06 GUARANTEES AND WARRANTIES

A. General

Warranty shall state name of project, location, name of Owner, name of Applicator, and date of final acceptance by the Material Manufacturer.

- 1. All warranty coverage shall commence upon completion of the work. All warranty documents shall be dated with the date of final acceptance of the work by the Owner.
- 2. Date of final acceptance will be as determined by the Owner or his designated Representative for the entire system.
- 3. Guarantee(s)/warranty(s) shall conform with the requirements of the Project Manual.

B. Roofing - Manufacturer's Warranty

- 1. Contractor shall provide Owner with Material Manufacturer's written, no dollar limit, (NDL) warranty for water tightness and performance, covering defects in materials and workmanship for a period of twenty-five (25) years. Warranty coverage shall commence upon acceptance of the Work by Owner with direct obligations running from Manufacturer to Owner.

Warranty coverage shall include the systems/materials defined in the following Sections:

- a. Proprietary materials and systems (Sections 075210, 075300).
 - b. Removal and replacement of overburden materials, including but not limited to concrete pavers protected membrane roof panels, roof insulation (XPS), and prefabricated drainage element, as part of any leak investigation/repair.
 - c. Wind Warranty (74 mph).
- 2. Material Manufacturer shall promptly repair or replace defective work reported within the warranty period at no cost to Owner. Leaks occurring during normal weather conditions, excluding winds in excess of those defined below, shall be deemed conclusive evidence of defective materials and/or workmanship. Corrective

action required by this Warranty is not limited to repair of leaks, but also includes, but is not limited to, repair or replacement where work is defective even though leaks may not have occurred such as wind damage in lieu of total loss, excessive membrane shrinkage, membrane cracking/crazing, premature deterioration/aging, and/or discoloration in excess of normal weathering. The work, when completed, shall not fail and/or experience loss (partial or total) of securement at roof top wind speed enumerated under Item 1.07, B.1.

3. Within twenty-four (24) hours (forty-eight (48) hours over weekends or holidays) of receiving notification of leaks and/or emergency conditions, weather permitting, Material Manufacturer shall begin repair or replacement work as required to eliminate water leakage. When weather or other conditions do not permit such work to be accomplished immediately, temporary protection shall be provided as required to prevent water damage to buildings and contents. Temporary measures, which may be employed by the Owner to protect property or content, shall not void this Warranty nor in any way reduce obligations imposed upon Material Manufacturer by this Warranty.
4. Material Manufacturer shall acknowledge the above Warranty requirements with a written "RIDER" (addendum) to the warranty document. The "Rider" (addendum) shall be identified on the face of the Warranty document.

C. Contractor's Warranty - Roofing

1. The Contractor shall warrant all work, covered under this Contract, has been installed in accordance with the requirements of this specification, including Owner-approved mock-up construction, and will remain free from any water penetration and physical defects caused by defective workmanship for a period of five (5) years from date of final acceptance by Owner. The Contractor's Warranty shall neither modify, replace and/or negate any Warranty furnished by a Material Manufacturer.
2. In the event of water leakage, Contractor shall adhere to the following response conditions:
3. Within twenty-four (24) hours (forty-eight (48) hours over weekends or holidays) of receiving notification of leaks and/or emergency conditions, weather permitting, Contractor shall begin repair or replacement work as required to eliminate water leakage. When weather or other conditions do not permit such work to be accomplished immediately, temporary protection shall be provided as required to prevent water damage to buildings and contents. Temporary measures, which may be employed by the Owner to protect property or content, shall not void this Warranty.
4. Overburden Clause. Removal/replacement of overburden shall be the responsibility of the Contractor.

- D. All warranty costs, inclusive of fees for set-up, initial and all required follow-up inspections, imposed by the Material Manufacturer shall be part of Contractors' bid and are to be prepaid by the Contractor to the Material Manufacturer prior to project close-out.

1. Material Manufacturer shall provide written confirmation of receipt of required warranty/inspection funds. Material Manufacturer is responsible for conducting follow-up warranty inspections as required to assure continuity of warranty coverage for the term specified.
- E. By virtue of their submitting a bid, Contractor acknowledges and accepts the requirements of the Contract Documents.

1.07 PROJECT CLOSE-OUT DOCUMENTATION

- A. Prior to final payment (release of retention), the Contractor shall submit to the Consultant the following documents. Affidavits and/or certifications shall be submitted and signed by an officer.
 1. A complete listing of all trade Sub-Contractors, business addresses, phone numbers, and items supplied by such trade Sub-Contractor.
 2. A listing of Manufacturers and suppliers of materials installed in the work.
 3. Payment of Debts and Claims and Consent of Surety: Conclusive evidence that he has paid all obligations arising out of the Construction Contract. He shall submit AIA Document No. G-706, Contractor's Affidavit of Payment of Debts and Claims, together with AIA Document G-707, Consent of Surety, indicating written consent of the surety to final payment.
 4. Release of Liens:
 - a. Contractor shall also submit AIA Document G-706-A, Contractor's Affidavit of Release Liens, indicating that, the release for waivers submitted are complete to the best of his knowledge, information, and belief and, if there are any exceptions, that they be so stated specifically in this form. Contractor, all Sub-Contractors, Manufacturer and Suppliers shall submit a "Waiver and Release of Lien Upon Final Payment" and/or any other release documentation required by the Owner and indicating full payment.
 5. Test Data: A copy of all test data taken.
 6. Material Manufacturer:
 - a. Field reports, test reports, or other pertinent correspondence authorized by technical representatives of the Material Manufacturer (s).
 - b. Written certification signed by the Manufacturer stating that the field supervision of the Manufacturer's representative was sufficient to ensure that application of materials of this roof system was conducted in accordance with the Material Manufacturer's application requirements and is acceptable for Warranty Coverage.
 7. All warranties, guarantees, maintenance agreements and similar provisions of the contract documents. Contractor shall submit to Consultant a "pencil copy" of all

warranties and guarantees. Once submission has been approved, Contractor shall have Owner execute warranty and submit fully executed warranty to Consultant for distribution.

8. Affidavit that punch list has been completed; include copy of punch list(s) signed by on officer of the corporation.
9. Project record documents as described herein, including but not limited to the following
 - a. As-built drawings;
 - b. Pre- and post-application documentation and test reports.
 - c. Concrete Deck: Deck moisture test results and locations.
 - d. Scale plan with delineation/location of temporary water cut-offs
 - e. Scale plan with delineation/locations of roof construction phases.
 - f. Scale plan showing layout of EFVM conductive wires and wire feed locations.
 - g. EFVM integrity examination report(s).
 - h. Fire watch log.
 - i. Cold weather log.
 - j. Drain leader test certificate (leaders are free flowing).
 - k. Waste recycling affidavit.
10. Contractor's Affidavits:
 - a. All work has been installed in accordance with the requirements and/or recommendations of the various Material Manufacturers and the Contract Documents. Further that, all conditions noted in Consultants' field observation reports as not in compliance with Manufacturer's requirements, standard(s) of the industry, or specified requirements have been corrected.
 - b. Certification of removal and disposal of all project-related materials and components in accordance with governing authority(ies), Material Manufacturer(s), and as specified.
 - c. Certification that drain lines are free-flowing.
11. Manufacturer's Affidavits:

Written certification signed by the Manufacturer stating that the field supervision of the Manufacturer's representative was sufficient to ensure that application of materials of this roof system was conducted in accordance with the Material Manufacturer's application requirements and is acceptable for specified Warranty Coverage.
12. Permits/Permit Sign-Off. Permits for all work items including, but not limited to, masonry, concrete, plumbing, electrical. DOB acceptances that plumbing and electrical work have been installed in accordance with local code requirements.

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 020610 - SELECTIVE ROOF DEMOLITION AND REMOVALS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

Work of this section shall be in accordance with the requirements of the contract documents.

1.02 SECTION INCLUDES

A. Work of this Section Shall Include but Not Be Limited To:

Provide labor, materials, equipment and services, and perform operations required for selective demolition and removals and related work as indicated on the drawings and specified herein; provide temporary roofing/flashing and waterproofing as required to maintain water tightness of the building interior during the work.

1. Roofing

- 1.1 Removal and disposal of existing roofing, including but not limited to roof membrane, roof insulation, protected membrane roof panels, precast concrete pavers, filter fabric, stone ballast, adhesive layers over roof deck, flashing (membrane, metal), metal coping/siding and attachment hardware (where specified, and as required for installation of new coping/siding).
- 1.2 Removal and disposal of existing regletted and through-wall metal counter flashing/face segment (where specified, and as required for installation of new base flashing and metal counter flashing systems).
- 1.3 Removal and disposal of existing elastomeric sealants and backer material.
- 1.4 Removal and disposal of abandoned roof top equipment. Furnish and install roof deck/curb closures as specified/required.
- 1.5 Temporary removal of roof/wall-mounted conduits, as required to perform the work.
- 1.6 Removal, disposal, and replacement of existing roof drain top components (retain existing drain bowls).

B. Related Work

1. MEP upgrade/modifications (ref. documents prepared by Owner's MEP Consultant).
2. Abatement of materials containing ACM or other controlled substances (ref. documents prepared by Owner's Environmental Consultant).
3. Ladder removal and reinstallation

1.03 RELATED SPECIFICATIONS

The Work of this section shall be in accordance with the applicable requirements of the following:

Division 7	075210 - Insulated Modified Bitumen Roofing
	075300 - Protected Modified Bitumen Roofing
	076200 - Metal Flashing and Trim

1.04 QUALITY ASSURANCE

- A. Work shall conform to the latest edition of applicable reference specifications and to applicable codes and requirements of local authorities having jurisdiction.
- B. Conflicting Requirements

In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards of these specifications, the provisions of the more stringent shall govern.

C. Regulatory Agencies

- 1. Building code of the City of New York, any rules and regulations of the Department of Building of the City of New York, NY, and any other government agencies having jurisdiction.
- 2. Fire Department of the City of New York, NY
- 3. New York State Uniform Fire Prevention and Building Code.
- 4. National Association of Demolition Contractors.
- 5. International Code Council (ICC)
- 6. International Building Code (IBC)
- 7. International Existing Buildings Code (IEBC)
- 8. International Property Maintenance Code (IPMC)
- 9. Workplace Safety:
 - a. OSHA Safety and Health Standards (29 CFR 1926/1910), current edition.
 - b. National Safety Council.
 - c. National Institute for Occupational Safety & Health.
 - d. Conduct air sampling or air monitoring (OSHA, NIOSH) to assure workplace safety (fabrication and installation) and safety of surrounding occupied structures. Test frequency as required to demonstrate compliance with governing authority or as required by the Owner.
 - e. NYC - DOB and other governing local code authority.
 - f. Department of Environmental Protection (EPA).
 - g. NYC-DOB and other governing local code authority.
 - h. ANSI A10.2 - Safety code for building construction.
ANSI 10.06 - Safety Requirements for Demolition Work.

1.02 SUBMITTALS

A. Schedules

Submit a phasing plan indicating proposed sequence of operations. Plan shall include the following:

1. Protection of interior and exterior surfaces.
2. Coordination/sequencing of roofing work.

B. Waste disposal

1. Submit waste disposal manifests, and waste disposal certificates showing that disposal was conducted in accordance with the requirements of the governing code authority.
2. Submit waste recycling manifests.
3. Submit hazardous waste disposal manifests.

C. Permits

Submit the following permits and notifications prior to commencement of the Work

1. Work Permit.
2. Sidewalk Shed Permit.
3. Notification of Staging and Outrigger Beam Use by Special Rigger.
4. Electrical Permits. Submit to Owner or Owner's designated representative.
5. Plumbing Permits. Submit to Owner or Owner's designated representative.
6. ACM or controlled substance filing documents.

D. Shop Drawings/Certifications

1. Layout of outrigger and hoist load distribution planking, include maximum counterweight and roof deck framing members. Include written certification by a licensed Structural Engineer.
2. Parapet Clamps. Written certification by licensed Structural Engineer.
3. Deck/Curb Closure. Provide shop drawings clearly indicating materials, temporary shoring, existing steel framing, new framing at opening with connection to existing framing, fireproofing, temporary protection. Shop drawings shall be signed/sealed by a licensed structural engineer.

Completed work shall be inspected by licensed structural engineer. Contractor to submit written sign-off.

1.02 EXISTING CONDITIONS, CONDITION OF STRUCTURE

A. The Owner assumes no responsibility for actual condition of the structure.

- B. The Contractor may perform destructive probes to review the existing conditions, coordinated with the Owner. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn by the Contractor.
- A. Conditions existing at the time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, variations may occur by Owner's operations.
- B. The Contractor is responsible for having taken steps reasonably necessary to ascertain the conditions that can affect the Work or its cost. Any failure by the Contractor to have done so does not relieve the Contractor from responsibility for successfully performing the Work without additional expense to the Owner.

1.02 SCAFFOLDING, RIGGING, HOISTING

- A. Furnish all scaffolding and rigging, hoists, ladders, etc, and services necessary for access to work areas, for erection and delivery into the building, and for setting in place of any material, equipment or apparatus. Furnish and install load distribution planks at outrigger scaffold, locations of debris storage to preclude damage to roof deck and any existing roofing. Consult with Owner as to extent and location of required load distribution.
- B. Material handling and hoisting equipment shall be installed, operated, and maintained in such a manner as to eliminate hazard to Owner/Tenant personnel, the public, the property, and the structure. All hoisting equipment shall conform to applicable requirements of the Local Municipality. Where required by Code, where specified, or wherever required for safety and protection of public, personnel and equipment, such equipment and materials shall be hoisted or rigged into premises by a Licensed Master Rigger.
- C. Protection (ref. Item 1.09).

1.03 EXISTING CONDITIONS, OCCUPANCY

- A. The Contractor is reminded that the Work is to be performed in an operational environment. The continuation of the Owner's operation and its employees and the public's safety are of top priority. The Contractor shall consult with the Owner in order to coordinate procedures for the Work.
- B. Consider all aspects of the Work, and how it will affect Owner's and Tenants' operations. Control noise, odor, dust, and work force at all times, particular during critical hours established by the Owner.
- C. Premises will be occupied during entire period of construction. Coordinate all aspects of the work and cooperate with the Owner to minimize conflict and to facilitate Owner's operation.
- D. Schedule work on site, both demolition and installations, in the sequence and within hours, including premium time, established by the Owner.
- E. Access to Work Areas
 - 1. Exterior Access. Contractor shall obtain, where feasible, access to the work areas from the exterior of the building via ladders, scaffolds, etc. and/or common areas of the building.
 - 2. Interior Access. Access through the interior of the structure and/or individual apartments shall require placement and maintenance of suitable protection, approved by the Owner for the duration of the project. It is noted that Owner will remove apartment furnishing. Interior access will not be granted unless coordinated with and approved by the Owner/Tenant.

1.04 PROTECTION

Provide and install protection as directed by the Safety Manager, including but not limited to:

- A. Provide barriers, railings, temporary walkways, sidewalk sheds, overhead protection, safety nets, etc., adequate in scope/extent and in accordance with local code authority, to safeguard the public and workmen from falling debris. Provide proper signs and written notification to all personnel and property owners in immediate and surrounding affected areas, notifying them of type and duration of construction operations.
- B. Material handling and hoisting equipment shall be installed, operated, and maintained in such a manner as to eliminate hazard to Owners' and public property. All hoisting equipment shall conform to the applicable requirements of the local code authority.

Protect from damaging existing finished work, including but not limited to roofs, walls, windows, roof-top units that are to remain in place.

- C. Provide and maintain temporary protection/waterproofing, during the period between demolition of existing construction and completion of new construction, to preclude water build-up within new construction and water leakage to the interior of the structure.

Temporary protection shall be placed to withstand local wind loads and shall be sufficiently durable to withstand protracted periods of inclement weather.

Remove protection at completion of new construction and all related work. Repair/replace damage caused during placement, securement, and/or removal of temporary protection.

- D. Remove protection at completion of related work. Restore damage or remove defacing as the result of protection or securement of protection. Standard shall be pre-construction condition(s).
- E. Promptly repair damages to adjacent facilities as the result of demolition work at no cost to Owner. Repair/restoration, as a minimum, shall provide pre-construction status.
- F. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with building operations, roads, streets, walks, and other adjacent occupied or used facilities with written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by Owner or governing regulations.

Use of debris chutes is prohibited, unless approved in writing by the Owner based on shop drawings provided by the Contractor, and field demonstration by the Contractor to the satisfaction of the Owner and local code authority.

- G. Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by Owner and/or authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
- H. Protect drain openings and drain leaders from debris and dust. Remove protection daily and/or with the onset of inclement weather or as required by progress and weather conditions at the project. Verify functionality of the storm water removal system periodically and prior to severe weather conditions.

- I. Adjust vertical location of drain opening as required during the work progress, to assure continuous discharge of storm water.
- J. Do not discard any construction material and substances of the work through drain and/or drain lines.
- K. Continuously shore existing walls/wall elements after selective removal of masonry to prevent settlement or damage.
- L. Protect equipment located within and outside the work area against debris and moisture intrusion. Interior protection requires approval of Owner.

Protect equipment, and fixtures identified to remain from soiling or damage during demolition and incorporation into new work.
- M. Store materials and equipment identified for re-use in a safe and protected manner. Furnish and install load distribution planks at location of material/equipment storage. Consult with Owner as to extent and location of required load distribution.
- N. Interior Protection. Provide protection to preclude damage, soiling and staining of the interior of the structure and odor intrusion. Protection shall consist of materials accepted, and placed as directed, by Owner. Maintain protection throughout the course of the work. Remove and reinstall interior protection daily where required by Owner.
- O. Erect temporary covered passageways as required by authorities having jurisdiction. Provide, erect, and maintain catch platforms, lights, barriers, weather protection, warning signs, and other items as required for proper protection of the workmen engaged in demolition operations, public and adjacent construction.
- P. Do not close driveways, walkways, passageways, doorways, stairways or the ways of egress, without authorization of the Owner. Do not store or place materials in passageways, stairs, or other ways of egress. Conduct operations with minimum traffic interference.

1.01 ENVIRONMENTAL CONTROLS

- A. Provide services for effective and suitable controls to prevent air and water pollution, as required by the Owner and in strict compliance with authority having jurisdiction.
- B. Abatement of asbestos containing roofing materials (ACRM) shall be in accordance with Owner's Environmental Consultant. This specification expressly excludes the identification, removal, handling, abatement, or any other interference with ACM or other controlled substances.

1.02 ELECTRICAL, MECHANICAL, & PLUMBING WORK

- A. Roof top equipment required to be relocated or lifted (with required disconnect) shall be disconnected by Owner's mechanical contractor. Work shall be coordinated by Roofing Contractor.
- B. Roof top equipment identified to be discarded shall be disconnected by Owner's mechanical contractor. Roofing Contractor shall remove and discard equipment. Work shall be coordinated by Roofing Contractor.
- C. Perform all electrical, mechanical, and plumbing work in strict accordance with local code authority.
- D. Prior to work commencement, submit to Owner, shop drawings and other submissions to clearly demonstrate extent of the work and compliance with local code authority.

- E. Employ only licensed and experienced trades for this work. Where required by Owner, use Owner-approved Contractors.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

1.01 EXAMINATION

- A. Examine conditions at the job site where work of this Section is to be performed to ensure proper arrangement and fit of the Work. Start of Work implies acceptance of job site conditions.
- B. Examine work that is intended to remain as part of the completed project and report any unsatisfactory conditions to the Owner or his designated Representative prior to commencement of Work.
- C. Perform inspection of the underside of the roof deck prior to any demolition, deck closure or deck penetration. Closely coordinate this work with the Owner; notify Owner immediately in the event of conflicts or conditions that may interfere with Contractor's work interfere with Owner's or tenant's operation or the safety of occupants and equipment below the roof deck.
- D. Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions of structure, surfaces, equipment, and/or of surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner prior to starting work.

1.02 COORDINATION

- A. Coordinate selective demolition with Owner, Owner's contractors, and other entities affected by the work.
- B. Complete all facade-related work prior to construction of final roofing.

1.03 DEMOLITION

- A. General
 - 1. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations. The demolition work specified herein expressly includes the use of all procedures necessary to maintain the building water-tight and to preclude water intrusion during demolition operations.
 - 2. Locate demolition equipment and debris throughout structure, remove debris daily to avoid imposing excessive loads on supporting walls, floors, or framing.
 - 3. Provide services for effective air and water pollution controls as required by the Owner and/or local authorities having jurisdiction.
 - 4. Limit each day's demolition of existing roofing/waterproofing to an area that can be protected with either (a) new roofing/waterproofing or (b) suitable temporary waterproofing the same day in accordance with the drawings and specifications. Plan and execute each day's demolition within an area that includes at least one (1) drain opening; do not extend demolition past high points of a specific drainage plane, unless drainage of this area can assured.

5. Limit each day's demolition of existing masonry to an area that can be safely protected in accordance with the requirements of this Section.
1. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner in written, accurate detail. Pending receipt of directive from Owner, rearrange selective demolition schedule as necessary to continue overall job progress without delay.
2. Adjust drain opening intakes to allow for positive and continuous water discharge during demolition and construction of new roofing. Where drain opening adjustment does not provide positive and continuous storm water discharge, conduct mechanical water removal as required to prevent water ponding within areas where work is performed.

B. Demolition of Existing Roofing

1. Coordinate and proceed with demolition of existing roofing and waterproofing in a manner that assures full replacement of removed materials, or as a minimum functional, temporary waterproofing, at the completion of each working day, or prior to onset of inclement weather. For requirements of temporary waterproofing, ref. Section 020610 / 3.04.
2. Coordinate and proceed with demolition of existing roofing and waterproofing in a manner that precludes impediment of storm water drainage. Assure, daily, that all drains are free of debris, unobstructed and at an elevation that ensures continuous water discharge.
3. Remove existing roofing and waterproofing down to the roof deck. No fasteners or adhesives are to be left in place in the deck or the flashing substrates. In the event of multiple roof systems, remove top roof system independent from lower roof system. Remove screw anchors by hand with suitable tools to preclude damage to the roof deck.

Schedule inspection of exposed roof deck; ref. Sections 075210, 075300 for required substrate inspection/acceptance by Material Manufacturer of new roofing.

4. Erect and maintain "debris removal" stations to keep workers and equipment uncontaminated when accessing new work. Schedule work to avoid, or as a minimum minimize, contamination.
5. Cut out and strip existing roof flashing from all walls, curbs, and roof fixtures. Clean and prepare existing surfaces for the proper installation of new flashing; comply with requirements of the Material Manufacturer for the new roofing/waterproofing and specific requirements of this specification.
6. Remove existing metal counter flashing where shown on Drawings. Protect segments of the existing metal counter flashing, identified to remain, from damage, distortion, and deformation.
7. Discard existing sheet metal flashing, except as noted on Drawings.
8. Discovery of damage to roof and or flashing membrane will require an in-depth survey of existing roofing as to moisture presence and other latent damage. Survey shall be destructive or non-destructive as required by the Roof System Warrantor and the Owner.

C. Demolition of Existing Masonry

1. Remove existing masonry in a controlled manner.
2. Support and protect masonry surrounding area of removal and indicated to remain. Remove existing masonry in a manner that precludes instability of adjacent and remaining masonry.
3. Thoroughly clean remaining masonry units of all existing mortar. Do not damage existing masonry; masonry damaged or destabilized as the result of demolition or cleaning shall be replaced in kind.

1.01 TEMPORARY WATERPROOFING

- A. Furnish and install temporary waterproofing where indicated in the scope of work, where shown on Drawings, or where required by the progress of the work.

Temporary waterproofing shall provide full protection against water penetration for protracted periods of time, in any event not less than six (6) months.

- B. Approved temporary waterproofing shall be applied over prepared and cleaned substrate; prime substrate where required by substrate type (application quality standard per Sections 075210, 075300). Temporary waterproofing shall be protected against damage and construction traffic expected at the site.
- C. Approved temporary waterproofing shall include separate flashing membrane that shall extend, vertically, a minimum of four (4") inches. Temporary waterproofing shall be applied over acceptable substrate (application quality standard per applicable Section).
- D. Approved temporary waterproofing may be retained as part of the new waterproofing/roofing system only with written acceptance of the Material Manufacturer and approval of Waterproofing Consultant. Remove and discard rejected temporary waterproofing; furnish and install new temporary waterproofing where required by the progress of the project.
- E. Deck Slope/Storm Water Drainage. Schedule inspection following installation of temporary waterproofing to evaluate deck slope and resultant water drainage. Conduct water test as requested to demonstrate effectiveness of storm water drainage.

1.02 WALL-MOUNTED & ROOF-MOUNTED EQUIPMENT

- A. Coordinate all removals with Owner (Temporary and Permanent).
- B. Remove equipment and store to preclude damage. Temporarily re-mount equipment where required by Owner.

1.03 TEMPORARY DISCONNECT OF ROOF TOP EQUIPMENT

- A. Coordinate with Owner any Work requiring temporary disconnect, removal, and replacement of roof top equipment.
- B. Temporarily disconnect, remove, and store conduits, supply lines, or other mechanical elements as required to perform demolition and installation of new Work. Reinstall and reconnect upon completion of the Work or as required by Owner to maintain Owner's operation.

- C. Perform all mechanical and electrical work with licensed trades and in strict accordance with applicable code authority(ies).

1.04 ALTERATIONS

- A. Assign the work of moving, removal, cutting, and patching to personnel or trades qualified to perform the Work in a manner which causes least damage to each type of work.
- B. Coordinate alterations and cutting with installation of new work as a continuous operation of work effort.
- C. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work.
- D. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive new work.
- E. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
- F. Install new products to provide completed work in accordance with the requirements of Contract Documents.
- G. Replace or restore to original conditions all materials or work damaged during construction due to the work being performed by this Contract.

1.05 REMOVAL OF ROOF TOP EQUIPMENT/ROOF DECK CLOSURE

- A. Remove/discard roof top equipment identified for removal. Prior to removal of any equipment, conduct survey in the presence of the Owner to verify removal status of equipment identified. Confirm survey results in writing.
- B. Coordinate removal of equipment and related closure of roof deck with Owner. Provide suitable protection (interior and exterior) against debris, dust, water intrusion, and damage. Implement and maintain safety measures as directed by Owner.
- C. Construct deck closure per the requirements of Part 1 of this Section. Submit written sign-off by licensed Structural Engineer.

1.06 CONCRETE DECK REPAIR

- A. Coordinate deck repair and related inspection with Membrane Manufacturer and Owner.
- B. Conduct under deck inspection. Remove and store all under-deck mounted items or elements that may interfere with the repair of the deck; reinstall upon completion of work.
- C. Secure interior space below the area targeted for repair. Set securement perimeter sufficient to preclude impact on Owner operations or Owner personnel.
- D. Remove deteriorated deck material until solid and sound deck is obtained.
- E. Deck repair shall be in accordance with the material manufacturer's requirements and as directed by Owner's Structural Engineer.

1.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove debris, rubbish, and other materials resulting from demolition operations from building site daily. Legally transport and dispose of materials off site.
- B. If hazardous materials and/or controlled substances are encountered during demolition operations, immediately notify the Owner or his designated Representative.

1.08 CLEAN-UP AND REPAIR

- A. Perform periodic and final cleaning as specified.
- B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.
- C. Clean Owner-occupied areas daily.
- D. Clean any spills and accidental application in Owner-occupied areas immediately.
- E. At completion of the work of each trade, clean area and make surfaces ready for work of successive trades.
- F. Upon each day's completion of work, remove tools, equipment, and remaining demolished materials from site. Remove protections and leave areas clean.
- G. At completion of each day's work operations, clean surrounding streets and walks of any accumulation of debris, materials and dirt resultant from demolition operations. Do not allow debris or salvage materials to accumulate on site. At completion of demolition operations and prior to final payment, debris and salvage materials shall be removed from the premises. Leave premises broom clean and orderly to the satisfaction of the Owner.
- H. Materials left on site after acceptance of work shall be deemed to have been abandoned by Contractor. Title of abandoned materials shall thereupon revert to the Owner. The Owner shall hold Contractor liable for cost incurred in removal and disposal of those materials.

END OF SECTION

SECTION 040120.63 - BRICK MASONRY REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Repairing brick masonry.
 - 2. Removing abandoned anchors.
 - 3. Painting steel uncovered during the work.

- B. Related Requirements:

- 1. Section 072726 "Fluid Applied Membrane Air Barrier" for substrate requirements
 - 2. Section 012100 "Allowances" for the allowance set for unsatisfactory brick repair.
 - 3. Section 012200 "Unit Prices" for unit price for brick masonry work

1.3 ALLOWANCES

- A. Allowances for brick masonry repair are specified in Section 012100 "Allowances."
- B. Preconstruction testing is part of testing and inspecting allowance.
- C. Brick removal and replacement is part of brick removal and replacement allowance.
- D. Patching brick masonry is part of masonry patching allowance.

1.4 UNIT PRICES

- A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."
 - 1. Unit prices apply to authorized work covered by quantity allowances.
 - 2. Unit prices apply to additions to and deletions from Work as authorized by Change Orders.

1.5 DEFINITIONS

- A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm

- B. Rebuilding (Setting) Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.
- C. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of bricks to freezing and thawing.

1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to brick masonry repair including, but not limited to, the following:
 - a. Verify brick masonry repair specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Quality-control program.
 - d. Coordination with building occupants.

1.7 SEQUENCING AND SCHEDULING

- A. Order sand and gray portland cement for colored mortar immediately after approval of mockup. Take delivery of and store at Project site enough quantity to complete Project.
- B. Work Sequence: Perform brick masonry repair work in the following sequence, which includes work specified in this and other Sections:
 - 1. Remove asbestos containing materials.
 - 2. Remove plant growth.
 - 3. Inspect masonry for open mortar joints and point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 - 4. Remove paint.
 - 5. Clean masonry.
 - 6. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
 - 7. Repair masonry, including replacing existing masonry with new masonry materials.
 - 8. Rake out mortar from joints to be repointed.
 - 9. Point mortar and sealant joints.
 - 10. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
 - 11. Where water repellents are to be used on or near masonry work, delay application of these chemicals until after pointing and cleaning.

1.8 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include recommendations for product application and use.
3. Include test data substantiating that products comply with requirements.

B. Shop Drawings:

1. Include plans, elevations, sections, and locations of replacement bricks on the structure, showing relation of existing and new or relocated units.
2. Show provisions for expansion joints or other sealant joints.
3. Show provisions for flashing, lighting fixtures, conduits, and weep holes as required.
4. Show locations of scaffolding and points of scaffolding in contact with masonry. Include details of each point of contact or anchorage.

C. Samples for Initial Selection: For the following:

1. Colored Mortar: Submit sets of mortar that will be left exposed in the form of sample mortar strips, 6 inch long by 1/4 inch wide, set in aluminum or plastic channels.
 - a. Have each set contain a close color range of at least three samples of different mixes of colored sands and cements that produce a mortar matching existing, cleaned mortar when cured and dry.
 - b. Submit with precise measurements on ingredients, proportions, gradations, and source of colored sands from which each Sample was made.
2. Sand Types Used for Mortar: Minimum 8 oz. of each in plastic screw-top jars.
3. Patching Compound: Submit sets of patching compound Samples in the form of plugs (patches in drilled holes) in sample units of masonry representative of the range of masonry colors on the building.
 - a. Have each set contain a close color range of at least three samples of different mixes of patching compound that matches the variations in existing masonry when cured and dry.
4. Include similar Samples of accessories involving color selection.

1.9 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For brick masonry repair specialist.
- B. Preconstruction Test Reports: For existing bricks and mortar.
- C. Quality-control program.

1.10 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.
 - 1. Field Supervision: Brick masonry repair specialist firm shall maintain experienced full-time supervisors on Project site during times that brick masonry repair work is in progress.
- 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.
 - b. Patching: Three small holes at least 1 inch in diameter for each type of brick indicated to be patched.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.11 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.

1.12 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.
- 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

2.1 PERFORMANCE REQUIREMENTS

- A. Source Limitations: Obtain each type of material for repairing brick masonry (brick, cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 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 of existing brick.
- 2.

2.3 MORTAR MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or Type II, except Type III may be used for cold-weather construction; grey where required for color matching of mortar.
 1. Provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Masonry Cement: ASTM C91/C91M.
 1. Basis of Design – WR Meadow
- D. Mortar Cement: ASTM C1329/C1329M.
 1. Basis of Design – WR Meadow
- E. 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.
- F. Mortar Pigments: ASTM C979/C979M, compounded for use in mortar mixes, and having a record of satisfactory performance in masonry mortars.
 1. Basis of Design – WR Meadow
- G. Water: Potable.

2.4 MANUFACTURED REPAIR MATERIALS

- A. Brick Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching brick masonry.
 1. Basis of Design – WR Meadow
 - 2.
 3. Use formulation that is vapor and water permeable (equal to or more than the brick), exhibits low shrinkage, has lower modulus of elasticity than bricks being repaired, and develops high bond strength to all types of masonry.

4. Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.
5. Formulate patching compound in colors and textures to match each brick being patched. Provide three colors to enable matching of the color, texture, and variation of each unit.

2.5 ACCESSORY MATERIALS

- A. Setting Buttons and Shims: Resilient plastic, nonstaining to masonry, sized to suit joint thicknesses and bed depths of bricks, less the required depth of pointing materials unless removed before pointing.
- B. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.
- C. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer.
 1. Surface Preparation: Use coating requiring no better than hand tools to provide surface preparation according to manufacturer's literature or certified statement.
- D. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:
 1. Previous effectiveness in performing the work involved.
 2. Minimal possibility of damaging exposed surfaces.
 3. Consistency of each application.
 4. Uniformity of the resulting overall appearance.
 5. Do not use products or tools that could leave residue on surfaces.

2.6 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.
- 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. Mixes: Mix mortar materials in the following proportions:

1. Rebuilding (Setting) Mortar by Volume: ASTM C270, Proportion Specification, 1 part portland cement, 1 part lime, and 6 parts sand
2. Rebuilding (Setting) Mortar by Type: ASTM C270, Proportion Specification, Type N unless otherwise indicated; with cementitious material limited to portland cement and lime
3. Pigmented, Colored Mortar: Add mortar pigments to produce exposed, setting (rebuilding) mortar of colors required.

PART 3 - EXECUTION

3.1 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.
- B. Remove associated hardware adjacent to masonry and store during masonry repair. Reinstall when repairs are complete.
 1. Provide temporary rain drainage during work to direct water away from building.

3.2 MASONRY REPAIR, GENERAL

- A. Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 10 feet away by Architect.

3.3 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. At other locations, see the allowance set forth in section 012100 and the unit price set forth in section 012200 for unsatisfactory bricks beyond those specified in the drawings.
- C. Support and protect remaining masonry that surrounds removal area.
- D. Coordinate with new flashing and waterproofing details.
- E. 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.

- F. 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.
- G. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.
- H. Replace removed damaged brick with other removed brick in good condition, where possible, matching existing brick. Do not use broken units unless they can be cut to usable size.
- I. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
 - 1. Maintain joint width for replacement units to match existing joints.
 - 2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- J. 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. Rake out mortar used for laying brick before mortar sets. Point at same time as repointing of surrounding area.
 - 3. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.
- K. 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.

3.4 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 as applicable to comply with paint manufacturer's recommended preparation.
 - 2. Antirust Coating: Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

- B. If on inspection and rust removal, the thickness of a steel member is found to be reduced from rust by more than 1/16 inch notify Architect before proceeding.

3.5 BRICK MASONRY PATCHING

- A. Patch the following bricks unless another type of repair or replacement is indicated:
 - 1. Bricks indicated to be patched.
 - 2. Bricks with holes.
 - 3. Bricks with chipped edges or corners measuring more than 3/4 inch deep.
 - 4.
- B. Remove and replace existing patches where observed.
- C. Patching Bricks:
 - 1. Remove loose material from masonry surface. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least 1/4 inch thick, but not less than recommended in writing by patching compound manufacturer.
 - 2. Mask adjacent mortar joint or rake out for repointing if patch extends to edge of brick.
 - 3. Mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
 - 4. Rinse surface to be patched and leave damp, but without standing water.
 - 5. Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.
 - 6. Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch or more than 2 inches thick. Roughen surface of each layer to provide a key for next layer.
 - 7. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of brick. Shape and finish surface before or after curing, as determined by testing, to best match existing brick.
 - 8. Keep each layer damp for 72 hours or until patching compound has set.
 - 9. Remove and replace patches with hairline cracks or that show separation from brick at edges, and those that do not match adjoining brick in color or texture.

3.6 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 nonmasonry 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.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.
- B. Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

3.8 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property.
- B. Masonry Waste: Remove masonry waste and legally dispose of off Owner's property.

END OF SECTION 040120.63

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Removal and reinstallation of existing steel items as indicated on drawings, including but not limited to the following:
 - a. Steel guardrails
 - b. Ladders
 - c. Handrails.
 - d. Landings.
 - e. PV Panel anchorage.
 - 2. Miscellaneous framing and supports.

1.3 COORDINATION

- A. Coordinate installation of metal fabrications that are anchored to or that receive other work.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Show installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
- B. Delegated-Design Submittal: For anchorage of all removed and reinstalled items, and miscellaneous framing and supports; including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design anchorage for steel railing and supports.
- B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
 - b. Infill load and other loads need not be assumed to act concurrently.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

2.2 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.
- D. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.

2.3 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
- C. Galvanize all miscellaneous framing and supports.

2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use. Select fasteners for type, grade, and class required.
- B. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 2.
- C. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
- D. Post-Installed Anchors: Chemical anchors.
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.5 FABRICATION, GENERAL

- A. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

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. 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.

3.2 REMOVAL AND REINSTALLATION OF STEEL ITEMS

- A. Remove steel items in accordance with Section 020610 “Selective Roof Demolition & Removals”.
- B. Reinstall steel items to comply with requirements of items being supported, including and requirements indicated on Shop Drawings and as determined during Delegated Design.
- C. Removal and reinstallation scope is limited to the ladders at Bulkhead A and Bulkhead B.

3.3 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

END OF SECTION 055000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood blocking and nailers.
 - 2. Wood shims.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
 - 1. Wood-preservative-treated wood.

1.6 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 - 1. Build mockup of each new assembly, including but not limited to the following:
 - a. At each of the two types of parapets at which manufactured coping assemblies will be installed.
 - b. At the parapet at which a manufactured fascia assembly will be installed.
 - c. HVAC duct penetration curb.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.
- C. Wood blocking: Douglas fir dimensional lumber, Grade 4 Common, moisture content 19 percent or less.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat all rough carpentry unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
 3. Rooftop equipment bases and support curbs.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. Shims: Utility grade cedar, 10-inch wide, 3/4-inch thick tapered to 1/8-inch thick.

2.4 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
 1. Where rough carpentry is exposed to weather, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M, or of Type 304 stainless steel.
- B. Nails: Common or roofing nails, min.6d , galvanized; or of Type 304 stainless steel.
- C. Screws: #11 or #12 wood screws, galvanized; or of Type 304 stainless steel.
- D. Concrete Screw: 300 Series stainless steel, 1/4 inch by 4 inch, Phillips head, as manufactured by DeWalt, trade name Aggre-Gator, or approved equal.

- E. Masonry Anchor: Stainless steel drive and zamac alloy body, length for minimum 1-1/2 inch embedment, as manufactured by Powers Fastening Inc., trade name Zamac Nailin, or approved equal.
- F. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- G. Threaded Rods and Nuts: 3/4" minimum diameter, 300-series stainless steel.
- H. Epoxy Adhesive: Two-part injection anchoring system, brand designation T308+ Epoxy, as manufactured by Powers Fastening, Inc., or approved equal.
- I. Mineral Wool Blanket Insulation: ASTM C 665 Type I, ASTM E 136, maximum flame spread index 0, smoke developed index 0.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Comply with AWWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 - 2. ICC-ES evaluation report for fastener.

- G. Use minimum 6D nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- H. Install fasteners within 3 inches of ends of wood blocking lengths, and at 8-inch spacing, staggered, between ends.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Install HVAC curb assemblies in two increments.
 - 1. First increment to enable installation of base flashings and temporary provisions to prevent water entry at and around the duct stubs.
 - 2. Second increment, in conjunction with installation of new ductwork (by others), to enable installation of base flashings at final required height and installation of metal counterflashings between ducts and curbs.

END OF SECTION 061000

SECTION 072726 - FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Low-build air barriers, vapor permeable.

B. Related Requirements:

1. Section 040120.63 "Brick Masonry Repair" for brick work behind air barrier
2. Section 074616 "Aluminum Siding" for exterior finish

1.2 DEFINITIONS

- A. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.
- B. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.
- C. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at project site

1. Review air-barrier requirements and installation, special details, mockups, air-barrier protection, and work scheduling that covers air barriers.

1.4 ACTION SUBMITTALS

A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.

1. Low-build air barriers, vapor permeable.

B. Shop Drawings: For air-barrier assemblies.

1. Show locations and extent of air-barrier materials, accessories, and assemblies specific to Project conditions.

2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
3. Include details of interfaces with other materials that form part of air barrier.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer. Use an experienced installer and adequate number of skilled personnel who are thoroughly trained and experienced in the application of the air barrier.
- B. Product Certificates: From air-barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.
- C. Product Test Reports: For each air-barrier assembly, for tests performed by a qualified testing agency.
- D. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
 1. Installer to be licensed by ABAA in accordance with ABAA's Quality Assurance Program and to employ ABAA-certified installers and supervisors on Project.
- B. Mockups: Build mockups to set quality standards for materials and execution
 1. Build mockup of typical wall area as shown on detail #5 on sheet A.802.00.
 2. Build mockups for siding including accessories.
 - a. Size: 36 inch wide section x full height
 - b. Include coping and flashing detail at both sides
 - c.
 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.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- B. Protect stored materials from direct sunlight.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air-barrier manufacturer.
 - 1. Protect substrates from environmental conditions that affect air-barrier performance.
 - 2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain primary air-barrier materials and air-barrier accessories from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction to be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies to be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Adhesion to Substrate: Minimum 16 lbf/sq. in when tested in accordance with ASTM D4541.
- C. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- D. UV Resistance: Can be exposed to sunlight for 90 days in accordance with manufacturer's written instructions.

2.3 LOW-BUILD AIR BARRIERS, VAPOR PERMEABLE

- A. Low-Build, Vapor-Permeable Air Barrier: Synthetic polymer material with an installed dry film thickness, according to manufacturer's written instructions, of 6 to 15 mils over smooth, void-free substrates.
 - 1. Basis of Design - WR Meadows – Air-Sheild LMP 60 mils wet
 - 2. Vapor Permeance: Minimum 5 perms; ASTM E96/E96M,

2.4 ACCESSORY MATERIALS

- A. Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.
- B. Primer: Liquid waterborne primer recommended for substrate by air-barrier material manufacturer.
- C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, 0.032 inches thick, and Series 300 stainless steel fasteners.
- D. Preformed Silicone Extrusion: Manufacturer's standard system consisting of cured low-modulus silicone extrusion, sized to fit opening widths, with a single-component, neutral-curing, Class 100/50 (low-modulus) silicone sealant for bonding extrusions to substrates.
 - 1. Basis of Design - WR Meadows – BEM Sealant

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
 - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
 - 2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.
 - 3. Verify that substrates are visibly dry and free of moisture.
 - 4. Verify that masonry joints are flush and completely filled with mortar.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate in accordance with manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.3 INSTALLATION OF ACCESSORIES

- A. Install accessory materials in accordance with air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.
 - 1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
 - 2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
 - 3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
 - 4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
- B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
- C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.
- D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- E. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.
- F. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
- G. Seal top of through-wall flashings to air barrier with an additional 6 inch wide , transition strip.

- H. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- I. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

3.4 INSTALLATION OF PRIMARY AIR-BARRIER MATERIAL

- A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier in accordance with air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.
 - 1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
 - 2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
 - 3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
- B. Low-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply an increased thickness of air-barrier material in full contact around protrusions such as masonry ties.
 - 1. Vapor-Permeable, Low-Build Air Barrier: Total dry film thickness 15 mils, applied in one or more equal coats. Apply additional material as needed to achieve void- and pinhole-free surface.
- C. Do not cover air barrier until it has been tested and inspected by testing agency.
- D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.5 FIELD QUALITY CONTROL

- A. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements:
 - 1. Air-barrier dry film thickness.
 - 2. Continuous structural support of air-barrier system has been provided.
 - 3. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
 - 4. Site conditions for application temperature and dryness of substrates have been maintained.
 - 5. Maximum exposure time of materials to UV deterioration has not been exceeded.
 - 6. Surfaces have been primed, if applicable.

7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
 8. Termination mastic has been applied on cut edges.
 9. Strips and transition strips have been firmly adhered to substrate.
 10. Compatible materials have been used.
 11. Transitions at changes in direction and structural support at gaps have been provided.
 12. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
 13. All penetrations have been sealed.
- B. Air barriers will be considered defective if they do not pass tests and inspections.
1. Apply additional air-barrier material, in accordance with manufacturer's written instructions, where inspection results indicate insufficient thickness.
 2. Remove and replace deficient air-barrier components for retesting as specified above.
- C. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.
- D. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

- A. Protect air-barrier system from damage during application and remainder of construction period, in accordance with manufacturer's written instructions.
1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials in accordance with air-barrier manufacturer's written instructions.
 2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 072726

SECTION 074616 - ALUMINUM SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum siding.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, grounds, nailers, and blocking.
2. Section 076200 "Metal Flashing and Trim" for adjacent flashing and coping assemblies.
3. Section 099600 "High-Performance Coatings" for shop applied finish.

1.2 COORDINATION

- A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at project site.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Aluminum siding.

- B. Product Data Submittals: Including material descriptions, dimensions of profile, and finish.

C. Samples for Verification:

1. 12 inch by 12 inch sample

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of aluminum siding

- B. Research/Evaluation Reports: For each type of aluminum siding required, from ICC-ES.

- C. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

1.7 MOCKUPS

- A. Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall area as shown on detail #5 on sheet A.802.00.
 - 2. Build mockups for siding including accessories.
 - a. Size: 36 inch wide section x full height
 - b. Include coping and flashing detail at both sides
 - 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.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with labels intact until time of use.
- B. Store materials on elevated platforms, under cover, and in a dry location.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including cracking and deforming.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain products, including related accessories, from single source from single manufacturer.

2.2 ALUMINUM SIDING

- A. Aluminum Siding: Formed and coated product complying with AAMA 1402.
 - 1. ASC Building Products
 - 2. Corrugated Metals, Inc.
- B. Profile Pattern:
 - 1. 2 - 1/2 inch rib with a minimum depth of 1/2 inch. style.
- C. Nominal Thickness: 0.050" (16 ga) minimum.
- D. Finish: High Performance Coating. See section 099600 "High-Performance Coatings".
 - 1. Colors: Custom color To match coping.

2.3 ACCESSORIES

- A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.
 - 1. Provide accessories made from same material and color of adjacent siding unless otherwise indicated.
- B. Aluminum Accessories: Where aluminum accessories are indicated, provide accessories complying with AAMA 1402.
- C. Flashing: Coordinate length with aluminum flashing complying with Section 076200 "Metal Flashing and Trim"
- D. Fasteners:
 - 1. For fastening to masonry, use ribbed bulge bolt with neoprene washer of sufficient length to penetrate a minimum of 1 inch into substrate.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of aluminum siding and related accessories.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install aluminum siding and related accessories in accordance with AAMA 1402.
 - 1. Install fasteners no more than 24 inches on center.
- C. Where aluminum siding contacts dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.

3.4 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces in accordance with manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074616

SECTION 075210 - MODIFIED BITUMEN MEMBRANE ROOFING

PART I - GENERAL

1.01 SUMMARY

- A. Provide temporary roofing and related flashing.
- B. Provide insulated modified bitumen roofing, including reinforced, cold fluid-applied resin membrane cap sheet and related flashing.

1.02 SECTION INCLUDES

- A. Work of this Section shall include, but not be limited to, the following:
 - 1. Preparation, cleaning, and inspection of substrate materials/surfaces.
 - 2. Temporary roofing and flashing.
 - 3. Thermal roof deck insulation (flat stock and tapered); cover boards.
 - 4. Torch-applied modified bitumen membrane base sheet.
 - 5. Cold fluid-applied, reinforced resin membrane cap sheet.
 - 6. Cold fluid-applied, reinforced resin membrane flashing.
 - 7. Roof System adhesives.
 - 8. Warranty requirements.

1.03 RELATED SECTIONS

The work of this part shall be in accordance with the applicable requirements of the following:

- Division 02 - 020610 - Selective Roof Demolition and Removals
- Division 07 - 076200 - Metal Flashing and Trim

1.04 QUALITY ASSURANCE

- A. Work shall conform to the latest edition of applicable reference specifications and to applicable codes and requirements of local authorities having jurisdiction.
- B. Conflicting Requirements. In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards of these specifications, the provisions of the more stringent shall govern.

C. References

Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used).

American Society for Testing and Materials	(ASTM)
Federal Specifications	(FS)
Factory Mutual Engineering	(FM)
Asphalt Roofing Manufacturers Association	(ARMA)
Single Ply Roofing Institute	(SPRI)
National Roofing Contractors Association	(NRCA)
Midwest Roofing Contractors Association	(MRCA)
Underwriters Laboratory	(UL)
Society of the Plastics Industry	(SPI)
Thermal Insulation Manufacturers Association	(RIC/TIMA)
American Conference of Government Industrial Hygienists	(ACGIH)
American Society of Civil Engineers	(ASCE)
Sheet Metal & Air Conditioning Contractors National Association	(SMACNA)
Steel Deck Institute	(SDI)

D. Regulatory Agencies

1. Underwriters' Laboratory (UL) - Products and assemblies in the work of this Specification shall provide fire resistance to meet construction requirements of UL Class A.
2. Department of Buildings of the City of New York
3. American National Standards Institute (ANSI)
ASCE 7-02 - Minimum Design Loads for Buildings and other Structures
4. International Code Council (ICC)
5. International Building Code (IBC)
6. International Existing Buildings Code (IEBC)
7. International Energy Conservation Code (IECC)
8. Fire Department of the City of New York
9. Workplace Safety
 - a. OSHA Safety and Health Standards (29 CFR 1926/1910), current edition.
 - b. National Safety Council.
 - c. National Institute for Occupational Safety & Health.
 - d. Department of Environmental Protection (EPA).
 - e. ANSI A10.2 - Safety code for building construction.
 - f. SSFI - Scaffold, Shoring, & Forming Institute.

E. Reference Standards

ANSI/SPRI 1A-1 2005	Standard Field Test Procedure for Determining the Mechanical Uplift Resistance of Insulation Adhesives over Various Substrates.
ASTM C-165	Standard Test method for measuring compressive properties of thermal insulation
ASTM C-177	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot Plate Apparatus
ASTM C-209	Moisture Absorption
ASTM C-236	Test method for Steady-State Thermal Performance of Building Assemblies by Means of a guarded Hot Box
ASTM C-272	Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
ASTM C-356	Linear Shrinkage
ASTM C-421	Tumbling Friability of Preformed Block-Type Thermal Insulation
ASTM C-518	Steady-State Heat Flux Measurements and Thermal Transmission Properties
ASTM C-578	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
ASTM C-665	Corrosiveness to Steel
ASTM C-726	Standard Specification for Mineral Fiber Roof Insulation Boards
ASTM C-795	Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692 (US Nuclear Regulatory Commission, Reg. Guide # 1.36: US Military Specifications MIL-I-24244 (all versions including B and C
ASTM C-1289	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM C-1303	Standard test method for estimating the long-term change in the thermal resistance of un-faced, closed-cell plastic foams by slicing and scaling under controlled laboratory conditions
ASTM C-1371	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
ASTM C-1549	Standard Test Method for Determination of Solar Reflectance Near Ambient Temperatures Using a Portable Solar Reflectometer
ASTM C-1918-06 (2015)	Standard Test Method for Measuring Solar Reflectivity of Horizontal and Low Slope Surfaces
ASTM D-751	Standard Test Methods for Coated Fabrics
ASTM D-1079	Terminology Relating to Roofing and Waterproofing
ASTM D-1621	Compressive Properties of Rigid Cell Plastics
ASTM D-2103	Standard Specification for Polyethylene Film and Sheeting
ASTM D-2126	Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
ASTM D 5147	Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material
ASTM D 5849	Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement)
ASTM D-6163	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
ASTM D-7877-14	Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproofing Membranes
ASTM E-84 (UL 723)	Test Method for Surface Burning Characteristics of Building Materials
ASTM E-96	Test Method for Water Vapor Transmission of Materials
ASTM E-119 (UL263)	Standard test method for fire tests of building construction and materials. See UL Roofing and Materials Directory for Assembly Details.
ASTM E119 (UL790)	Standard Test Methods for Fire Tests of Roof Coverings.

ASTM E-408	Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
ASTM E-903-96	Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials using Integrating Spheres
ASTM E-1980	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
ASTM F-1869-11	Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-Floor Using Anhydrous Calcium Chloride
ASTM F-2170-11	Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using in-situ Probes
ANSI/UL 1256	Steiner Tunnel Fire Classified Construction
CAN4 S114	Non-Combustibility in Building Materials
Factory Mutual Global	Approval Standard 4450/4470
ICRI (2002)	Technical Guidelines: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays

F. Contractor Qualification

Qualification documentation must be submitted together with Contractor Bid.

1. Roofing Contractor

- a. Provide a letter from Material Manufacturer stating that Contractor is an approved applicator and employs personnel that is trained and experienced in the application of the materials specified. Letter shall be on letterhead of Material Manufacturer and shall be signed by an officer of the company.
- b. Provide a copy of the Approved Applicator Agreement between Contractor and Material Manufacturer.
- c. Provide written evidence that Contractor has been in the business of installing specified roofing and/or waterproofing products for at least five (5) years (consecutively). Provide project experience of not less than five (5) installations similar to scope of this Project. Give name of Project, Location of Project, and name of Owner or his designated Representative for each installation listed.
- d. Provide copies of all warranties.

G. Roof System Manufacturer Qualification

Qualification documentation must be submitted together with Contractor Bid.

1. Primary Roof System Manufacturer shall provide a list, including contact information, of at least five (5) roof installations (reference projects). The reference project shall meet the following criteria:
 - a. Scope shall be same or similar to this roof project.
 - b. Completion (including warranty coverage) five (5) years or older.
 - c. Roof construction shall include all materials/components proposed/specified for this roof.

- d. All materials/components shall be manufactured and/or warranted by the primary roof system manufacturer. List materials/components that are supplied/ manufactured by secondary manufacture.
2. Copy of the manufacturer's warranty that will be issued for the project. Indicate compliance with, or clearly identify exclusions from the warranty requirements specified in Section 019000.

1.01 SUBMITTALS

A. General

All submittals shall be provided in accordance with the provisions of the Contract Documents and as specified herein.

B. List of Materials

1. Submit complete list of materials proposed for use on this Project for work of this Section. List shall designate specific Manufacturer and product designation, along with specific quality reference (for instance, FM listing, ASTM Specification No.).
2. Submit copies of Certificate of Compliance from each Manufacturer of materials for work of this Section. Certificate shall state compliance with requirements of Contract Documents.

C. Product Data

1. Submit Manufacturer's technical and physical data on system's materials and products required in this Section.
2. Manufacturer's data required to demonstrate compliance with specified requirements.
3. Material Safety Data Information (MSDS). Indicate compliance with local, state, and national VOC regulations/requirements.
4. Air Quality Management (AQM). Provide written evidence that all products used in the construction of the work specified comply with current regulations concerning Volatile Organic Content (VOC) and the Ozone Transport Commission (OTC).

D. Manufacturer's Data for Use in Construction Administration

1. Submit Manufacturer's printed instructions for installation of temporary roofing and final roofing, including roof deck insulation system, roof membrane and flashing (reinforced, cold-fluid applied resin membrane). Include and clearly identify modifications required by this specification

E. Samples and Mock-Ups

1. Submit samples of the following (*Only Where Required by Owner or His Designated Representative*):
 - a. Modified Bitumen Base Ply (min. 12" x 12").
 - b. Reinforced Cold Fluid-Applied Resin Membrane Cap Ply (min. 12" x 12").

- c. Thermal Insulation/Cover Boards (min. 12" x 12").

1. Mock-Up Construction:

Install at project site mock-ups using acceptable products and manufacturer approved installation methods.

- a. Mockup inspection is contingent on receipt/approval of shop drawings and related submittals. Mock-up inspections shall be conducted jointly by Contractor, Material Manufacturer(s), Roofing Consultant, Architect.
- b. Submit schedule of mock-up construction prior to commencement of the Work. Schedule shall include (1) type/description of mockup, (2) location (plan), (3) approved shop drawings/submittals.
- c. Mock-ups shall serve as the standard by which other work is to be installed and evaluated. Once approved, retain mock-ups.
- d. Construct the following mock-ups:
 - i. Membrane T-joint; (base sheet):
1 unit each
 - ii. Perimeter flashing:
5 lf min.
 - iii. Temporary roofing, including flashing:
25 sf
 - iv. Final Roofing, include thermal roof deck insulation system, cover board.
25 sf

Note: For additional mock-up construction, ref. typical details.

- a. Construct the following mock-ups:
 - i. Perimeter Flashing: 5 lf min.

Note: For additional mock-up construction, ref. typical details.
- b. Notify Consultant 72 hours prior to mock-up work. Provide required submissions inclusive of shop drawings prior to mock-up construction.
- c. Mock-ups shall be used to verify Contractor's understanding of the roof system installation including but not limited to substrate preparation/cleaning, placement/securement of roof deck insulation system, flashing systems, and compliance with manufacturer's application requirements.
- d. Mock-ups shall be used to complete pre-installation requirements/testing of the Material Manufacturer, including but not limited to substrate acceptance, adhesion to substrate, substrate moisture, material coverage rates, integration of prefabricated flashing elements.

- e. Provide written acceptance of the Material Manufacturer of the following:
 - i. Acceptance of Substrate(s).
 - ii. Preparation and cleaning of each substrate type.
 - iii. Primer type/coverage.
 - iv. Moisture content for substrate material/composite.
 - v. Adhesion to substrate.
 - vi. Resin Coverage for reinforced, cold-fluid applied resin membrane flashing.
 - vii. Application quality and compliance with Manufacturer's requirements.

B. Shop Drawings

- 1. Contract Drawings may be "red-lined" for shop drawing submission.
- 2. Only shop drawings that have been stamped "approved by Contractor" will be accepted for review.
- 3. Show complete roof layout and orientation of membrane. Show all required flashing layouts and types.
- 4. Show details for elements penetrating roofing, including but not limited to pipes, supports, drains, anchors, curbs.
- 5. Show complete layout of tapered insulation system. Indicate width, length, slope and composition of tapered insulation system. Indicate minimum continuous drain line slope to be achieved; indicate perimeter/penetration flashing condition with vertical rise above finished roofing of less than eight inches (8").
- 6. Show all required fastening types (mechanical anchors, adhesives), spacing, and layout. Indicate compliance with code requirements specified.
- 7. Show details at construction tie-ins/water cut-off as follows:
 - a. Existing roofing to temporary roof.
 - b. Temporary roofing to final roofing.

C. Application of Manufacturer's Warranty

- 1. Contractor shall submit completed Manufacturer's Quality Control Compliance Documentation and application form for warranty.
- 2. The submittal shall contain all technical information applicable to the project, including deck types, substrate and/or deck slopes, surface preparation/treatment and/or insulation assemblies (with method of attachment and fastener type). The application for warranty form must bear the acceptance signature of the Material Manufacturer.

D. Warranties

- 1. Submit copy of warranty of Material Manufacturer and Contractor. Submission shall reflect specified warranty coverage requirements per Item 1.11 of this Section. Warranties shall be submitted together with Contractor bid or prior to bid award.

2. Written statement of Material Manufacturer and Contractor indicating acceptance of Item 1.11 Warranty of this section is mandatory. Statement shall be submitted together with Contractor bid or prior to bid award.

A. Manufacturers'/Contractors' Review

Before commencing work submit written statement signed by the Manufacturer/Contractor stating that the Contract Documents have been reviewed by qualified representatives of the Material Manufacturer/Contractor, and that they are in agreement that the selected materials are proper, compatible and adequate for the application shown, and that the conditions and details are not in conflict with the warranty coverage specified herein.

Certifications shall be on company letterhead, signed by an officer of each company.

1. Certificates: product certificates signed by manufacturers certifying materials comply with specified performance characteristics and criteria and physical requirements.
2. Substrate Acceptance (temporary and final roofing). Submit a certified statement issued by the Material Manufacturer and countersigned by the Contractor, attesting that areas to receive the work have been inspected and found satisfactory for the reception of this Work, and are not in conflict with the products and warranty coverage specified. Submission shall clearly state extent of substrate acceptance in the event acceptance is granted for less than the entire project. Application of any material will be construed as acceptance of surfaces.
3. Certify that all materials used in the construction of this work meet dimensions/mass and physical/mechanical properties (Manufacturers "Certificate of Analysis").
4. In-Progress Certifications. Submit written certificate of compliance jointly signed by Contractor and Manufacturer, stating that installation of new roofing (temporary/final) is in accordance with Contract Documents, in accordance with Manufacturer's printed installation instructions, and that substrate materials/conditions have been inspected and found acceptable for the installation of the new/temporary roofing. Certificate shall be on Manufacturer's letterhead and shall be signed by an officer of the Manufacturer/Contractor.

B. Permits/Certificates of Fitness

1. Submit torching permit.
2. Submit a Certified Torch Welder certificate for each mechanic.
3. Submit certificates of equipment fitness.

1.01 FIELD TESTING

Conduct the following testing where required in the scope of work, as part of pre-application testing, and as QC element during the installation. Testing shall be conducted with the a representative of the Material Manufacturer and Consultant present; submit test results with written acceptance of Material Manufacturer.

A. Moisture Content - Concrete/Cementitious Substrata

Determine moisture content of concrete/cementitious substrates in accordance with an ASTM test method approved and accepted by the Material Manufacturer as follows:

1. ASTM F2170-11
2. ASTM F1869-11
1. Hygrometer Test
2. Electrical Resistance Test
3. Glass Sheet Test
4. Plastic Sheet Test
5. Rubber Mat Test

Contract Documents require use of moisture testing i/a/w ASTM F2170-11; other test methods require the approval/acceptance of the Material Manufacturer. Testing frequency shall be as directed by the Material Manufacturer, but not less than two (2) tests per 5,000 sf.

B. Pull-Off Resistance

1. Adhesion Testing of Unreinforced/Reinforced Coatings:
 - a. Conduct testing in accordance with ASTM D4541 using a portable, hand-operated testing unit.
 - b. Acceptable Testing Unit: ELCOMeter 106 (Scale 1 or 2).
2. Field Adhesion Testing of Modified Bitumen Sheet Membranes:

135° to 180° hand peel test of one inch (1") wide membrane strip separated from adhered membrane section.

Test to be employed only with written consent of Material Manufacturer.

1.02 DELIVERY, STORAGE, and HANDLING

- A. Deliver, store, and handle all materials to prevent damage. Contractor's crew shall be fully trained/certified in the transport, storage, handling, application, and disposal of materials specified herein or employed by the Contractor during the course of the Work.
- B. Coordinate storage locations with the Owner or his designated Representative. Materials shall be stored in quantities that do not exceed allowable structural capacity, do not damage substrate materials, hinder installation or impair storm water drainage.
- C. Materials shall be delivered to site in original tightly-sealed or unopened containers/packages with each container/package bearing label of Manufacturer. All materials shall be labeled as to size, type, physical, performance characteristics and agency approvals.
- D. Storage and handling of materials shall be strictly in accordance with the requirements/ recommendations of the Material Manufacturer, including but not limited to the following:

1. Materials shall be supplied dry and shall be kept dry at all times prior to application. Materials shall be stored in an enclosed, dry storage space. Closely observe Material Manufacturer temperature requirements (minima/maxima) for outside (on-site) storage. Handle all materials to prevent damage. Remove factory plastic-wrap to preclude condensation. Store materials elevated and fully protect from moisture using suitable opaque, reinforced tarping, secured to prevent displacement and exposure of materials.
2. Materials indicating moisture content above equilibrium shall be rejected as unacceptable. Ensure adequate ventilation to prevent condensation.
3. Roll goods shall be stored vertically on clean, dry surfaces on platforms. Rolls with damaged ends or flattened rolls shall not be used.
4. Deliver, store, and handle all classified products, such as solvents, resins, etc. in strict accordance with the applicable MSDS data sheet.
5. Deliver, store, handle all materials in accordance with the local building and fire authority based on MSDS information of the respective material Manufacturer.
6. Dispose of all materials in accordance with the provisions/requirements of the respective MSDS data sheet.

1.03 PROTECTION

A. General

Protection of facilities shall comply with the provisions of the Contract documents and as specified herein.

B. Building Exterior

Building walls above and below work areas shall be protected to prevent soiling, stains, or spills at all hoisting points or perimeter work locations. Contractor shall be responsible to restore pre-construction conditions.

C. Work Area / Material Storage

1. Provide barricades, retaining ropes, and any appropriate signage required by OSHA and/or the Owner or his designated Representative.
2. Provide and maintain workplace safety per the requirements of OSHA and NIOSH.
3. Store Materials in accordance with Item 1.07 of this Section.

D. Open Flame Torch Protocol

1. Designate one (1) person on each crew to perform daily fire watch. Designated person shall be equipped with a suitable, hand-held infra-red thermometer. Fire watch shall continue for a minimum of one (1) hour post termination of open flame or hot air operations. Test areas with infra-red thermometer to assure absence of hot spots.
2. Torch applicators shall be Certified Roofing Torch Welder per the requirements of the MRCA CERTA - Certified Roofing Torch Welding Applicator Program, or approved equivalent.

1. Conduct all torching operations in strict accordance with the requirements and recommendations CERTA, and of applicable Industry Organizations and Code Authority.
 1. Odor/Dust Protection
 2. Implement and maintain protection systems to prevent odor and dust penetration to building interior.
 3. Protection systems shall be designed/coordinated between Owner (or his designated representative), Contractor, and field tested at off-hours and shall include, but not be limited to, the following:
 - a. Sealing of air intakes or placement of suitable filters.
 - b. Sealing of entrances, windows, louvers and other wall openings.
 - c. Implementation of workplace safety measures in compliance with OSHA/NIOSH, local governing authority, and Owner's requirements.
- B. Against Load
1. Do not store material/equipment on completed work of this section.
 2. Where due to work sequence storage of material/equipment on completed sections is required, Contractor shall provide protection suitable in extend and scope to prevent damage (latent and patent) to the roofing (final, temporary) and the structure.

As a minimum, protection shall consist of extruded polystyrene (2"), PE sheathing (0.008"), and exterior grade plywood boards and shall take into consideration the material characteristics of the underlying roof composite. Protection shall be placed over cleaned substrata, secured to prevent displacement by roof activities and wind loads typically experienced at the project site.
 3. Areas utilized for storage and related traffic shall be coordinated with the Owner (or his designated representative) and clearly delineated by the Contractor. Areas, upon release from storage and related traffic, shall be re-tested in accordance with the EFVM integrity test protocol defined in this Section.
- C. Against Traffic
1. Traffic is not permitted across completed sections of the waterproofing application except for workmen performing the work.
 2. The Contractor shall plan/coordinate installation progress to prevent traffic across completed or partially completed sections. Where traffic, across completed or partially completed sections is necessary, Contractor shall provide protection in accordance with Item 1.08 / F. / 2. above.
 3. Areas subject to construction and/or related traffic shall be coordinated with the Owner (or his designated representative) and clearly delineated by the Contractor. Areas shall be re-tested in accordance with the EFVM integrity test protocol defined in this Section.
- D. Rejection of Damaged Work
1. Roofing Contractor, jointly with Owner or his designated Representative and Material Manufacturer's Representative shall investigate completed sections of the work.
 2. Damaged roofing or roofing components will be rejected.

3. Replace damaged roofing components with new brand materials. Replacement will be at Contractor's expense.

1.02 ENVIRONMENTAL CONDITIONS

- A. Application of materials shall not commence nor proceed during, or under the threat of inclement weather.
- B. All surfaces to be joined shall be completely dry and free of condensation, dew, frost, or other forms of moisture.
- C. Prior to and during installation of materials, all dirt, dust, and debris shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air, or similar methods.
- D. Do not commence or continue with installation of insulation during periods of excessive winds when the safety of personnel may be endangered and/or proper installation may be compromised.
- E. Do not commence with installation of membrane or flashing when air temperature is below 40°F or 40°F and falling unless work environment is approved by and/or in accordance with site-specific application protocol established by the Material Manufacturer(s). Monitor dew point at/below ambient temperatures of 50°F. Maintain application log for material applications at temperatures below 40°F.

1.10 MANUFACTURER'S REPRESENTATIVE

- A. Manufacturer shall assign one qualified technical representative for the duration of the project.
- B. The technical representative shall perform weekly inspections during the application to verify application methodology, including, but not limited to, substrate preparation, substrate moisture content, and tensile bond strength of membrane composite to substrate materials. Inspection duration/frequency shall ensure that application meets quality for issuance of specified warranty coverage.
- C. Observations of the technical representative shall be provided in the form of a field report submitted to the Contractor, Owner (or his designated representative), and Waterproofing Roofing Consultant.
- D. Costs associated with the Manufacturers' inspections shall be part of Contractors' bid.

1.11 WARRANTY

Work of this Section is part of total systems warranty as specified in Section 019000 (Roofing Close-Out).

1.12 BIDDING REQUIREMENTS

- A. Pre-Bid Conference

A pre-bid conference shall be held with at the site with mandatory attendance by Contractor, Material Manufacturer(s), Testing Agencies, Owner or his designated Representative and all involved trades to discuss all aspects of the project. The Contractor's field representative or roofing foreman for the work shall be in attendance.

- B. Site Visit

Bidders shall visit the site and carefully examine the areas in question as to conditions that may affect proper execution of the work. All dimensions and quantities shall be determined or verified by the Contractor. No claims for extra costs will be allowed because of the lack of full knowledge of the existing conditions.

PART II - MATERIALS

1.01 MODIFIED BITUMEN ROOF MEMBRANE

- A. Provide a complete roof system, provided by a single manufacturer, for undivided responsibilities. Materials and methods of installation shall comply with the warranty requirements specified herein.

- B. Manufacturer

Products of the following Manufacturer that retain physical property values listed in Part 2 of this Section will be acceptable for use on the Project:

1. Siplast, Inc.

- C. Roof Membrane Composite

1. General

Roof membrane shall be a 2-ply composite consisting of one (1) ply of smooth prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membranes (base ply) and one (1) cap ply of field-applied reinforced, cold-fluid applied resin membrane. Cap ply shall be surfaced with an approved mineral aggregate to effect full embedment and coverage, and sealed with approved sealer/color coat.

2. Base Ply [Modified Bitumen]. Membrane shall consist of a acrylic coated prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 - Type I, Grade S (min. thickness 110 mils) - "Siplast Pro Base TG".

3. Cap Ply [Field-Fabricated Resin Membrane]. Reinforced, cold fluid-applied (CFA) resin membrane, including all system-related accessories supplied by the Material Manufacturer. "Siplast Parapro 123 Flashing System".

4. Mineral Aggregate Surfacing and Sealer/Color Coat

- a. Embedment Agent (Resin)

Mineral aggregate surfacing shall be embedded in supplemental resin coat approved by the Material Manufacturer.

- b. Kiln-Dried Silica/Quartz Sand

Sand shall be washed, kiln-dried and dust free provided by the Material Manufacturer. "Siplast Pro Natural Quartz".

- c. Color Coat

Pigmented, multi-component, fast curing PMMA resin. "Siplast Pro Color Finish Resin".

D. Flashing Membrane Composite

1. General

Flashing shall be field-constructed of 2-ply of approved membrane, including stripping ply, as shown on enclosed drawings. Membrane products shall be suitable for application using open-flame torching method, or self-adhered, as noted on Drawings or mandated by substrate composition. Flashing shall be field-constructed over acceptable substrata, prepared, cleaned and primed in accordance with this specification. Flashing (cap) membrane shall be surfaced with an approved mineral aggregate to effect full embedment and coverage, and sealed with approved sealer/color coat.

2. Flashing Membrane

- a. Stripping Ply [Modified Bitumen]. Membrane shall consist of a smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 - Type I, Grade S (min. thickness 110 mils).
“Siplast Pro Base TG, or Siplast Pro Base SA”

or

- b. Stripping Ply [Field-Fabricated Resin Membrane]. Reinforced, cold fluid-applied (CFA) resin membrane, including all system-related accessories supplied by the Material Manufacturer. “Siplast Parapro 123 Flashing System”.
- c. Flashing (Cap) Membrane [Field-Fabricated Resin Membrane]. Reinforced, cold fluid-applied (CFA) resin membrane, including all system-related accessories supplied by the Material Manufacturer. “Siplast Parapro 123 Flashing System”.
- d. Mineral Aggregate Surfacing and Sealer/Color Coat
- i. Embedment Agent (Resin)
- Mineral aggregate surfacing shall be embedded in supplemental resin coat approved by the Material Manufacturer.
- ii. Kiln-Dried Silica/Quartz Sand
- Sand shall be washed, kiln-dried and dust free as provided by the Material Manufacturer.
“Siplast Pro Natural Quartz”.
- iii. Color Coat
- Pigmented, multi-component, fast curing PMMA resin.
“Siplast Pro Color Finish Resin”.

B. Temporary Roof /Flashing Membrane

1. Temporary roof membrane/flashing shall consist of (1) ply of prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Membrane shall be suitable for application using open-flame torching method.
2. Temporary Roof Membrane [Modified Bitumen] - Membrane shall consist of a smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 - Type II, Grade S (min. thickness 134 mils).
“Siplast Paradiene 20 EG TG”.
3. Temporary Flashing Membrane [Modified Bitumen] - Membrane shall consist of a smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 - Type II, Grade S (min. thickness 134 mils).
“Siplast Paradiene 20 EG TG”.

1.01 ROOF DECK INSULATION SYSTEM

A. Products of the following Manufacturer will be acceptable for use on the Project:

1. Siplast, Inc.

B. Insulation Board

1. Insulation shall be homogenous polyisocyanurate foam board with continuous facer of fiberglass mat coated with filled/foamed polymeric coating (high-performance coating), on both surfaces of the insulation board. Insulation shall meet/exceed ASTM C1289, Type II, Class 2, Grade 3.
“Siplast Paratherm CG Tapered”.
2. Insulation shall have a minimum thickness of six inches (6”), tapered 3/16” per foot.
3. Maximum insulation panel dimensions shall be 4' x 4'.

1.02 COVER BOARD

A. Gypsum-Fiber Cover Board

1. Manufacturer
United States Gypsum Company (USG)
2. Material
High-performance gypsum-fiber roof board.
“Securock Gypsum-Fiber Roof Board”.
3. Cover board shall have a minimum thickness of ½”
4. Maximum board dimensions shall be 4' x 4'.

1.01 INSULATION / COVER BOARD ADHESIVE

A. Adhesive

Single-component, moisture-cure, solvent-free, polyurethane rigid insulation adhesive.
“Siplast Para-Stik”

1.02 ACCESSORIES

A. Prefabricated Accessories

Supplied by Membrane Manufacturer. Use prefabricated accessories where possible to eliminate site fabrication and as required by the Membrane Manufacturer to obtain specified warranty.

B. Membrane Bonding and Sealing Accessories

Bonding adhesive, seam sealant, water cut-off mastic, primers, solvents, temporary sealants and/or other components shall be supplied by the Membrane Manufacturer.

All bonding/sealing accessories shall be in compliance with current VOC regulations.

C. Water Cut-Off Mastic/Sealants

Supplied by Membrane Manufacturer.

D. Waterproofing/Flashing Membrane Cleaner

Solvent cleaner supplied by Membrane Manufacturer.

E. Sealant

Supplied by Membrane Manufacturer.

F. Cementitious Fill

One component, rapid hardening, early strength gain cementitious patching mortar. For thickness greater than one inch (1"), extend with three- eighths inch (3/8") pea gravel.
“SikaQuick 1000”.

1.03 REJECTED MATERIALS

The Owner or his designated Representative shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements or the intent of the scope of work shall be removed from the Owner’s premises by the Contractor within one (1) day of verbal notification, which will be followed by written confirmation.

PART III - EXECUTION

1.01 PRE-INSTALLATION MEETING & COORDINATION

- A. Prior to the start of the Work, and at the Contractor's direction, meet at the Project site to review methods and sequence of installation, special details and conditions, standard of workmanship, testing and quality control requirements, job organization and other pertinent topics related to the Work.

The meeting shall include the Structural Engineer, Waterproofing Consultant, Contractor's Project Superintendent, Material Manufacturer's representative, inspection and testing services (if any) and any other subcontractors whose work requires coordination with this work.

- B. Coordinate work of this Section with the work of other trades. Do not commence with any work of this Section, unless the work, or portions thereof, has been cleared for application.

1.02 PRE-APPLICATION TESTING / MOCK-UP CONSTRUCTION

- A. Construct mock-ups per Section 075210, Item 1.05 E; schedule inspections once shop drawings have been reviewed and returned with notations "approved" or "approved as noted".

General construction shall not commence unless mock-up construction has been approved following inspection by Waterproofing Consultant/Material Manufacturer.

1.03 CONDITION OF SURFACES

- A. Remove and discard all existing roofing above roof deck in its entirety (ref. Section 020610 - Selective Roof Demolition and Removals).

Conduct removal in a manner that permits daily installation of new roofing or functional temporary roofing including flashing systems at perimeters and penetrations to provide and maintain a watertight building interior throughout the work.

- B. Complete and/or coordinate repair/replacement of existing roof deck. Coordination shall include protection of the building interior, scheduling with Owner/Building Occupants, and exterior temporary protection/waterproofing.

- C. Contractor shall verify that the work required/completed under this or related sections meets the following conditions:

1. Vents, drains, cants, blocking, equipment support on or penetrating the deck have been positioned, secured and/or supported.
2. All surfaces are smooth and free of dirt, debris and incompatible materials.
3. All surfaces are free of ice, water and snow.
4. Concrete/Cementitious Decks. Moisture content is below specified minima.
5. Roof deck repairs/replacement have been completed and accepted by Owner's Structural Engineer or his designated Representative.

1.04 PREPARATION OF SUBSTRATE

A. General

1. The roof deck (including existing roof construction where retained) must be structurally sound to provide support for the new roof system. The Owner or his designated Representative shall ensure that the roof deck is secured to the structural framing according to local building code, resist all anticipated wind loads, and support new roof system loads.
2. Any substrate to receive new or temporary roofing (including flashing), shall be clean, dry, free of loose, spalled or weak materials, free of corrosion, oil, grease, contaminants, including but not limited to adhesives, water stops, water cut-off, abrupt changes in level, and free of projections which could affect the installation and/or damage the roofing.
3. Do not proceed with the installation of roofing, until vents, drains, cants, blocking and other projections through the decks have been positioned, secured and/or supported.
4. Where preparation of substrate materials requires the use of power driven or actuated tools, observe applicable use instructions and safety requirements.
5. Before installation of any roofing materials (temporary roofing and final roofing), the Material Manufacturer shall inspect substrate and issue written acceptance. Any corrections shall be implemented prior to the commencement of the Work.
6. Application of any component of the Work by the Contractor shall indicate suitable and acceptable surfaces in accordance with the Contract Documents.

B. Concrete Deck Substrata

1. New concrete shall be cured for a minimum of 28 days in accordance with ACI-308, or as recommended by the concrete/mortar manufacturer to obtain a minimum hardness of 3,500 psi (25N/mm²) with a maximum moisture content as stated under Item 3.03-B.3.

Light-weight structural concrete, with light-weight aggregate, shall not be used.

Repairs of existing concrete shall be performed using a single-component, rapid-curing, early-strength cementitious patching compound. Patching compound shall be cured/protected as recommended by the Material Manufacturer. Patching compound shall exhibit a maximum moisture content as stated under Item 3.03-B.3 following a cure period of 5 days.

2. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials. De-grease concrete, where required, via detergent washing in accordance with ASTM D-4258 or through use of de-greasing agent approved or recommended by the Material Manufacturer. Obtain Material Manufacturer's written approval to proceed with direct application of roof and/or flashing membranes.

3. New or existing concrete shall be dry with a maximum moisture content of 5% percent and 75% relative humidity. Determinations as to moisture content shall be performed by the Contractor using methods/equipment approved by the Material Manufacturer. Contractor shall be responsible to perform periodic evaluations as to substrate moisture content during the work. Moisture evaluation results shall be submitted in writing to the Material Manufacturer for acceptance.
1. Concrete substrate may require abrasive cleaning in accordance with ASTM D4259/ICRI to provide a sound substrate free from laitance and with an open concrete surface. Provide surface profile of CSP 3 or 4 i/a/w ICRI "Technical Guideline No. 03732 or as approved via substrate preparation mock-up.
2. The entire substrate shall be sounded and inspected. All spalls, voids, blow holes, and other deterioration or depressions shall be repaired in accordance with the requirements of the Material Manufacturer.

Route cracks and repair in accordance with the requirements of the Material Manufacturer. Cracks with an average width of 1/4" or larger shall be treated with a bond-breaker tape, following routing and filling with approved filler material.
3. Areas of surface deterioration, in excess of surface profile stated above, shall be corrected to prevent possible ponding of components of the system, leading to excessive usage of primer and resin, reduced adhesion, and/or blisters. Substrate repair shall be conducted with approved leveling compound. Extent and location of thin surface patching shall require approval of the Owner or his designated Representative prior to the application of any system component.

1.01 TEMPORARY ROOFING/WATERPROOFING

- A. Install temporary roofing/waterproofing in accordance with enclosed Drawings, over roof deck that has been inspected and approved by Owner's Structural Engineer and accepted by the Material Manufacturer. Verify that all required deck repairs have been completed.
- B. Provide/install temporary roofing/waterproofing throughout the course of the project, as directed by the Owner (or his designated Representative), to accommodate deck repair/replacement, to safe-off new or existing roof top equipment modifications/replacement, to protect temporary and final roofing from water intrusion and as necessary to maintain watertight conditions.
- C. Remove/discard temporary flashing as directed, as shown on enclosed drawings and to prevent interference with flashing systems of the final roof system.
- D. Localized, Shallow Water Ponding
 1. Evaluate storm water drainage after placement of temporary roofing.
 2. Identify areas of localized water ponding with a depth of more than 1/8"; submit roof plan depicting location, size and depth of water pond(s).
 3. Eliminate water ponds via supplemental application of MB base ply sections prior to placement of MB cap ply.

1.02 APPLICATION - ROOF DECK INSULATION

- A. Do not install more insulation that can be completely covered and made watertight with membrane and flashing the same day.
- B. Roof deck insulation shall consist of approved base insulation/re-cover board, or as shown on enclosed drawings. All elements of the roof deck insulation shall be installed in strict accordance with the requirements and recommendations of the Material Manufacturer(s).
- C. Base insulation shall be installed in multiple layers with each layer staggered to preclude the formation of vertical joints that project from substrate to top of roof deck insulation. At lines of work stoppage, maintain board stagger. Protect insulation units at leading edge from damage/deformation.
- D. Coverboards shall be placed over base insulation. Double stagger joints of the overlay board over the top layer of the base insulation.
- E. All elements of the thermal roof deck insulation system shall be adhered.
 - 1. Adhesive Attachment
 - a. Adhesives shall not be intermingled.
 - b. Prepare and clean substrate(s) in strict accordance with the requirements of the Material Manufacturer. Verify that temperature/humidity and moisture content of substrate(s) will not interfere with the application of the roof materials, and will not affect the performance and intended function of the roof.
 - c. Apply adhesives in strict accordance with the application protocol required and/or recommended by the Material Manufacturer to obtain continuous attachment. Adhesives shall be applied in beads with a minimum width of 3/4".
 - d. Apply adhesives to prevent contamination of the top surface of the insulation and/or recover board being secured.

1.01 INSTALLATION OF ROOF MEMBRANE

- A. General
 - 1. Membrane Application. Apply waterproofing membrane in accordance with the requirements and recommendations of the Material Manufacturer and the following requirements.
 - 2. Installation of membrane shall be accomplished in such a way that each area will be complete at the end of each day of work. All membrane edges and flashing shall be protected against water entry at all times in accordance with the Membrane Manufacturer's printed instructions. Cut-offs and temporary protection shall be completely removed prior to resuming work.
 - 3. Phased application of membrane is not acceptable unless approved in writing by the Material Manufacturer. In the event phasing is permissible, clean and prepare base sheet in accordance with the Membrane Manufacturer's printed instructions prior to application of cap sheet.

4. Protect all areas where membrane has been installed (ref. Section 07521), Item 1.7. Do not work off installed membrane during application of remaining plies. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.
1. Open-Flame Torch Application
 - a. Only use equipment which is approved and recommended by Industry Organizations and the Material Manufacturer. Strictly follow safety and operating instructions provided by the Manufacturer of the torch system. Heat membrane consistently to temperatures recommended by the Material Manufacturer.
 - b. Contractor shall thoroughly train all personnel anticipated to use open-flame torching equipment prior to starting application. Follow use and application guidelines for open-flame torching such as “Certified Roofing Applicator (CERTA)” by MRCA or approved equivalent.
 - c. Conduct fire prevention inspections during the membrane/flashing torching operations. Fire prevention inspections and fire watch shall be performed by one (1) designated person for the project duration. Maintain daily fire watch for a minimum of one (1) hour after completion of all torching operations. Fire watch shall be equipped with a suitable infra-red thermometer to scan the area. Maintain fire watch log and submit as part of close-out documents.
 - d. Do not allow torching devices to come in contact with flammable materials. Inspect substrate surfaces, walls, abutments and all surrounding surfaces prior to use of torching device so that necessary precautionary measures can be implemented. Use caution when working around roof top equipment, supply lines or mechanical equipment which may have electrical and/or fuel connections.
 - e. Keep torch flame moving at all times, failure to do so may result in ignition of surface and/or underlying materials.
 - f. Avoid prolonged contact with heat sensitive materials, as overheating of these materials could ignite underlying flammable materials.
 - g. DO NOT use propane except in well-ventilated areas.
 - h. Check all fittings and other equipment on the application equipment for leakage. Never use a flame to check fittings and other equipment.
 - i. Propane tanks are pressurized. Do not puncture. Do not expose to excessive heat. Maintain tanks at a minimum safe distance away from the torch flame.
 - j. Containers which contain or may have contained flammable material must be kept clear from torch or other heat source.
 - k. Never place a hot torching device on the roof surface, insulation or any other surface or object other than an acceptable stand or holder or fireproof surface. Never leave a lighted

torch unattended. Allow torching device to cool completely to room temperature before removing it from roof.

l. ever use a torching device to apply any material other than modified bitumen membrane specifically formulated for torching application.

a. Provide and maintain a minimum of two (2) code approved fire extinguishers in the immediate work area.

2. For substrates that absorb asphalt it is necessary to apply the asphalt in sufficient quantity to assure the level of adhesion specified.

B. Priming

1. Modified Bitumen Membrane. Prime concrete/cementitious substrata, metal flanges, concrete, and masonry surfaces with a uniform coating of approved primer following substrate cleaning and preparation. Limit exposure of primer to the elements to a maximum of 12 hours after application.

2. Reinforced, Cold Fluid-Applied Resin (CFA). Prime all substrate material as required by the Material Manufacturer, following substrate cleaning and preparation. Do not overexpose primer; re-active primer as required by the Material Manufacturer.

C. Roof Membrane Composite

1. Apply all layers of membrane free of wrinkles, creases or fish mouths. Exert sufficient pressure on the roll during application to prevent air pockets. Lap seams (end and side laps) in the base ply shall not coincide with the lap seams of the cap ply. Stagger all plies to eliminate stacked membrane lap seam.

2. Apply all membrane plies perpendicular to slope of deck. arrange side laps with the flow of water.

3. Fully torch bond the base ply to the prepared and primed substrate; provide a minimum of three (3) inch side and end laps. Treat T-joints at intersection of end/side laps as shown on enclosed Drawings.

4. Reinforced, Cold, Fluid-Applied (CFA) Resin Membrane Cap Sheet. Apply CFA membrane cap sheet over prepared and primed modified bitumen membrane base sheet.

D. Flashing Application

1. Provide system with base flashing, penetration flashing, counter flashing, and all other flashing required and necessary for a complete watertight system. Flashing shall be constructed in accordance with the requirements and recommendations of the Material Manufacturer, as shown on enclosed Drawings, and the following requirements.

2. It is the intent of this specification that all penetrations through the roofing system, either horizontally or vertically, are to be flashed per enclosed Drawings, or in the absence of specific drawings per the requirements of the Material Manufacturer. Where flashing is identified to be constructed per verification in the field and/or approved mock-up construction, Contractor's bid shall include labor, materials, accessories and equipment required to construct flashing, which as a minimum, meet the general intent of the Contract Documents for a 25-year roofing system and shall satisfy the warranty provisions specified.

3. Modified Bitumen Membrane Flashing

- a. Perimeter and curb flashing shall consist of a composite of approved reinforcing membrane and flashing membrane. Reinforcing membrane and flashing membrane shall be applied with three (3") inch side laps; side laps shall be staggered by twelve (12") inches minimum. DO NOT stack end laps. Flashing shall extend vertically a minimum of eight (8") inches and a maximum of twenty-four (24") inches above finished roof membrane. Follow Material Manufacturer's direction for flashing exceeding 24" vertically.
- b. All flashing shall be mechanically fastened or otherwise retained to prevent any form of excessive movement. DO NOT stretch membrane during application. Prevent direct contact of dissimilar metals.
- c. Flanges of metal flashing shall have a minimum width of four (4") inches; both sides of the flanges shall received application of approved primer. Strip flanges with approved modified bitumen membrane, less not than four (4") inch in width.
- d. Set flanges of metal flashing components in thin, continuous bed of approved flashing cement and secure per enclosed drawings. Fasteners shall be placed staggered to obtain flange lay-flat and to preclude distortion during exposure to thermal gradients. Seal leading edge of membrane flashing with approved sealants, at terminations over metal flanges and where shown on enclosed Drawings.

1. Reinforced Cold Fluid-Applied Resin Membrane Flashing

- a. Apply CFA flashing at locations indicated on enclosed Drawings, and in strict accordance with the requirements of the Material Manufacturer.
- b. CFA flashing shall be connected to primary waterproofing by way of approved mineral surfaced modified bitumen membrane target sheet or other means approved by the Material manufacturer; ply configuration shall conform to enclosed Drawings, or written approval of the respective Material Manufacturers.

Prepare, clean and prime approved substrate per the requirements of the Material Manufacturers; apply approved primer immediately after preparation/cleaning is complete.

- c. Roof penetrations with a diameter of less than four (4") inches, shall receive a flashing pocket (filled solid with concrete - sloped to drain), secured to approved treated wood blocking attached to the roof deck.

CFA membrane flashing shall fully encapsulate flashing pocket with horizontal extension terminated over an approved modified bitumen target sheet or roof membrane prepared i/a/w the requirements of the Material Manufacturer.

- d. Flanges of metal flashing as well as other joints constructed of dissimilar materials, shall receive a separate stripping ply of approved modified bitumen membrane; metal flange width shall be not less than four (4") inches.
- e. Fill gaps, openings, transitions, interstitial spaces, etc with approved reinforced flashing paste; apply 4" min stripping ply where required by the Material Manufacturer.

- f. Surface CFA flashing with approved mineral aggregate broadcast into approved embedment coat; apply surfacing in strict accordance with the requirements of the Material Manufacturer to obtain a continuous and uniform aggregate layer. Remove all loose aggregate following resin cure and apply approved sealer/color coat.

1.01 TEMPORARY WATER CUT-OFF CONSTRUCTION

- A. Construct functional water cut-offs at the end of each work day. Water cut-offs shall be constructed for both temporary and final roof systems.
- B. Water cut-offs shall be of sufficient quality and durability to withstand protracted periods of inclement weather and to preclude water intrusion into the building interior and/or the temporary/final roof system. Contractor shall assume a minimum performance horizon of six (6) months.
- C. Water cut-offs shall not hinder, preclude or interfere with storm water drainage.
- D. Water cut-offs shall be constructed to preclude interference with any component of the temporary/final roofing and permit removal without damage to the temporary/final roofing
- E. Fully remove water cut-offs upon resumption of the Work.

1.02 PROTECTION

- A. The Roofing Contractor shall fully protect new roof system (temporary and final) from all trades during roof construction and after completion. Any damage to the system shall be repaired prior to quality control inspection.

1.03 CLEAN-UP

- A. The Roofing Contractor shall remove all masking, protection, equipment, materials, and debris from the work and storage areas and leave those areas in an undamaged and acceptable condition.

1.04 MANUFACTURER'S INSPECTIONS

- A. Inspections shall be made by a representative of the responsible Membrane Manufacturer. The Contractor shall arrange for these inspections and notify the Owner or his designated Representative each time the Membrane Manufacturer's Representative is present at the job site. These inspections shall be in addition to any inspections which may be made by an employee or representative of the Owner or his designated Representative. Written reports of the Membrane Manufacturer's inspections shall be made, with copies to the Owner or his designated Representative and to the Contractor. Membrane Manufacturer shall inspect work at start, during and at completion.
- B. Inspections shall be made at such times and frequency as required to determine that:
 - 1. Deck surface is acceptable to receive membrane.
 - 2. Insulation surface is acceptable for roofing membrane prior to installation.

1.01 FIELD QUALITY CONTROL

- A. Testing for conformance with requirements of Contract Documents may be employed by the Owner or his designated Representative.
- B. Testing Procedures
 - 1. Check substrate for moisture and physical condition to determine suitability to receive materials.
 - 2. Determine moisture content of materials.
 - 3. Determine adhesion of waterproofing membrane to substrate.
 - 4. Inspect flashings at deck openings and at perimeters.
 - 5. Test membrane for specified physical properties.

1.02 WORKMANSHIP

- A. Work of this Section that does not conform to specified requirements shall be corrected and/or replaced as directed by the Owner or his designated Representative, at Contractor's expense, without extension of time. Contractor shall also be responsible for cost of corrections to any work affected by or resulting from corrections to work of this Section.

END OF SECTION

SECTION 075300 - PROTECTED MODIFIED BITUMEN ROOFING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provide temporary roofing and related flashing.
- B. Provide modified bitumen roofing and related flashing.
- C. Provide prefabricated drainage element.
- D. Provide extruded polystyrene insulation.
- E. Provide protected membrane roof panels.
- F. Provide ballast securement against wind loads.

1.02 SECTION INCLUDES

- A. Work of this Section shall include, but not be limited to, the following:
 - 1. Preparation and cleaning of substrate materials/surfaces.
 - 2. Temporary roof construction.
 - 3. Torch-applied modified bitumen membrane base sheet.
 - 4. Torch-applied modified bitumen membrane cap sheet.
 - 5. Cold fluid-applied, reinforced resin membrane flashing.
 - 6. Drainage mat.
 - 7. Extruded polystyrene (XPS) roof insulation.
 - 8. Protected membrane roof panels.
 - 9. Pre-cast concrete pavers.
 - 10. Integrity examination of temporary and final roofing membrane (EFVM method).
 - 11. Warranty requirements.

1.03 RELATED SECTIONS

The work of this part shall be in accordance with the applicable requirements of the following:

- Division 02 - 020610 - Selective Roof Demolition and Removals
- Division 07 - 076200 - Metal Flashing and Trim

1.04 QUALITY ASSURANCE

A. Work shall conform to the latest edition of applicable reference specifications and to applicable codes and requirements of local authorities having jurisdiction.

B. Conflicting Requirements

In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards of these specifications, the provisions of the more stringent shall govern.

C. References

Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used).

American Society for Testing and Materials	(ASTM)
Federal Specifications	(FS)
Factory Mutual Engineering	(FM)
Asphalt Roofing Manufacturers Association	(ARMA)
Single Ply Roofing Institute	(SPRI)
National Roofing Contractors Association	(NRCA)
Midwest Roofing Contractors Association	(MRCA)
Underwriters Laboratory	(UL)
Society of the Plastics Industry	(SPI)
Thermal Insulation Manufacturers Association	(RIC/TIMA)
American Conference of Government Industrial Hygienists	(ACGIH)
American Society of Civil Engineers	(ASCE)
Sheet Metal & Air Conditioning Contractors National Association	(SMACNA)
Steel Deck Institute	(SDI)

D. Regulatory Agencies

1. Underwriters' Laboratory (UL)

Products and assemblies in the work of this Specification shall provide fire resistance to meet construction requirements of UL Class A.

2. Department of Buildings of the City of New York

3. American National Standards Institute (ANSI)

ASCE 7-02 - Minimum Design Loads for Buildings and other Structures

4. International Code Council (ICC)

5. International Building Code (IBC)

6. International Existing Buildings Code (IEBC)

7. International Energy Conservation Code (IECC)

8. Fire Department of the City of New York

9. Workplace Safety
- a. OSHA Safety and Health Standards (29 CFR 1926/1910), current edition.
 - b. National Safety Council.
 - c. National Institute for Occupational Safety & Health.
 - d. Department of Environmental Protection (EPA).
 - e. ANSI A10.2 - Safety code for building construction.
 - f. SSFI - Scaffold, Shoring, & Forming Institute.
- B. Reference Standards
- | | |
|----------------|---|
| ASTM C-165 | Standard Test method for measuring compressive properties of thermal insulation |
| ASTM C-177 | Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot Plate Apparatus |
| ASTM C-209 | Moisture Absorption |
| ASTM C-236 | Test method for Steady-State Thermal Performance of Building Assemblies by Means of a guarded Hot Box |
| ASTM C-272 | Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions |
| ASTM C-356 | Linear Shrinkage |
| ASTM C-421 | Tumbling Friability of Preformed Block-Type Thermal Insulation |
| ASTM C-518 | Steady-State Heat Flux Measurements and Thermal Transmission Properties |
| ASTM C-578 | Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation |
| ASTM C-665 | Corrosiveness to Steel |
| ASTM C-795 | Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692 (US Nuclear Regulatory Commission, Reg. Guide # 1.36: US Military Specifications MIL-I-24244 (all versions including B and C |
| ASTM C-1303 | Standard test method for estimating the long-term change in the thermal resistance of un-faced, closed-cell plastic foams by slicing and scaling under controlled laboratory conditions |
| ASTM C-1371 | Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers |
| ASTM C-1549 | Standard Test Method for Determination of Solar Reflectance Near Ambient Temperatures Using a Portable Solar Reflectometer |
| ASTM D-751 | Standard Test Methods for Coated Fabrics |
| ASTM D-1079 | Terminology Relating to Roofing and Waterproofing |
| ASTM D-1621 | Compressive Properties of Rigid Cell Plastics |
| ASTM D-2103 | Standard Specification for Polyethylene Film and Sheeting |
| ASTM D-2126 | Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging |
| ASTM D-4434 | Standard for Polyvinyl Chloride Sheet Roofing |
| ASTM D-5036 | Standard Practice for Application of Adhered Poly (Vinyl Chloride) Sheet Roofing |
| ASTM D 5147 | Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material |
| ASTM D 5849 | Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement) |
| ASTM D-5957-98 | Standard for Flood Testing Horizontal waterproofing installation |

ASTM D-6163	Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
ASTM D-7877-14	Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproofing Membranes
ASTM E-84 (UL 723)	Test Method for Surface Burning Characteristics of Building Materials
ASTM E-96	Test Method for Water Vapor Transmission of Materials
ASTM E-119 (UL263)	Standard test method for fire tests of building construction and materials. See UL Roofing and Materials Directory for Assembly Details.
ASTM E119 (UL790)	Standard Test Methods for Fire Tests of Roof Coverings.
ASTM E-408	Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
ASTM E-1980	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
ASTM F-1869-11	Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-Floor Using Anhydrous Calcium Chloride
ASTM F-2170-11	Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using in-situ Probes
ANSI/UL 1256	Steiner Tunnel Fire Classified Construction
CAN4 S114	Non-Combustibility in Building Materials
Factory Mutual Global	Approval Standard 4450/4470
ICRI (2002)	Technical Guidelines: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays

C. Contractor Qualification

Qualification documentation must be submitted together with Contractor Bid.

1. Roofing Contractor

- a. Provide a letter from Material Manufacturer stating that Contractor is an approved applicator and employs personnel that is trained and experienced in the application of the materials specified. Letter shall be on letterhead of Material Manufacturer and shall be signed by an officer of the company.
- b. Provide a copy of the Approved Applicator Agreement between Contractor and Material Manufacturer.
- c. Provide written evidence that Contractor has been in the business of installing specified roofing and/or waterproofing products for at least five (5) years (consecutively). Provide project experience of not less than five (5) installations similar to scope of this Project. Give name of Project, Location of Project, and name of Owner or his designated Representative for each installation listed.
- d. Provide copies of all warranties.

B. Roof System Manufacturer Qualification

Qualification documentation must be submitted together with Contractor Bid.

1. Primary Roof System Manufacturer shall provide a list, including contact information, of at least five (5) roof installations (reference projects). The reference project shall meet the following criteria:
 - a. Scope shall be same or similar to this roof project.

- b. Completion (including warranty coverage) five (5) years or older.
 - c. Roof construction shall include all materials/components proposed/specified for this roof.
 - d. All materials/components shall be manufactured and/or warranted by the primary roof system manufacturer. List materials/components that are supplied/ manufactured by secondary manufacture.
2. Copy of the manufacturer's warranty that will be issued for the project. Indicate compliance with, or clearly identify exclusions from the warranty requirements specified in Section 019000.

1.01 SUBMITTALS

A. General

All submittals shall be provided in accordance with the provisions of the General Requirements and as specified herein. Submittals shall be submitted following project award.

B. List of Materials

1. Submit complete list of materials proposed for work of this Section. List shall designate specific Manufacturer and product designation, along with specific quality reference (for instance, UL listing, FM Global listing, ASTM Specification No.).
2. Submit copies of Certificate of Compliance from each Manufacturer of materials for work of this Section. Certificate shall state compliance with requirements of Contract Documents.

C. Product Data

1. Submit Manufacturer's technical and physical data on system's materials and products required in this Section.
2. Manufacturer's data required to demonstrate compliance with specified requirements.
3. Material Safety Data Sheets (MSDS).
4. Air Quality Management (AQM). Provide written evidence that all products used in the construction of the work specified comply with current regulations concerning Volatile Organic Content (VOC) and the Ozone Transport Commission (OTC).

D. Manufacturer's Data for Use in Construction Administration

Submit Manufacturer's printed instructions for installation of temporary roofing (include recover board), and final roofing, including roof deck insulation system, roof membrane and flashing (modified bitumen membrane and reinforced, cold-fluid applied resin membrane); and protective overburden. Include and clearly identify modifications required by this specification.

E. Samples & Mock-Ups

1. Product Samples

Submit samples (in duplicate) of the following (only where required by Owner or his designated representative):

- a. Modified bitumen sheet membrane, base & cap sheets (min. 12" x 12" each).
- b. Membrane flashing (modified bitumen; cold, fluid-applied resin membrane; min. 12" x 12").
- c. Drainage mat.
- d. Thermal insulation.
- e. Roof protection board.
- f. Pre-cast concrete paver.

2. Mock-Up Construction

Install at project site mock-ups using acceptable products and manufacturer approved installation methods.

- a. Mockup inspection is contingent on receipt/approval of shop drawings and related submittals. Mock-up inspections shall be conducted jointly by Contractor, Material Manufacturer(s), Roofing Consultant, Architect.
 - b. Submit schedule of mock-up construction prior to commencement of the Work. Schedule shall include (1) type/description of mockup, (2) location (plan), (3) approved shop drawings/submittals.
 - c. Mockups shall serve as the standard by which other work is to be installed and evaluated. Once approved, retain mock-ups during construction as standard for evaluating completed work.
 - d. Construct the following mock-ups:
 - i. Membrane T-joint; (base sheet):
1 unit each
 - ii. Protection Elements:
25 sf
 - iii. Cold, fluid-applied resin membrane flashing at irregular penetration:
1 Unit each
 - iv. Perimeter flashing:
5 lf min.
 - v. Temporary roofing, including flashing:
25 sf
 - vi. Final Roofing, include prefabricated drainage element (include connection (drain/side-end laps) and termination (perimeter/penetration)), thermal roof deck insulation system, filter, protection board, ballast:
25 sf
- Note: For additional mock-up construction, ref. typical details.
- e. Notify Consultant 72 hours prior to mock-up work. Provide required submissions inclusive of shop drawings prior to mock-up construction.

- f. Mock-ups shall be used to verify Contractors' understanding of the roof system installation including but not limited to substrate preparation/cleaning, placement/securement of roof deck insulation system, flashing systems, and compliance with manufacturer's application requirements.
- g. Mock-ups shall be used to complete pre-installation requirements/testing of the Material Manufacturer, including but not limited to substrate acceptance, adhesion to substrate, substrate moisture, material coverage rates.
- h. Provide written acceptance of the Material Manufacturer of the following:
 - i. Acceptance of Substrate(s).
 - ii. Preparation and cleaning of each substrate type.
 - iii. Primer type/coverage.
 - iv. Moisture content for substrate material/composite.
 - v. Adhesion to substrate.
 - vi. Resin Coverage for reinforced, cold-fluid applied resin membrane flashing.
 - vii. Application quality and compliance with Manufacturer's requirements.

C. Shop Drawings

- 1. Shop Drawings shall be coordinated and reflect the requirements of other disciplines (i.e., structural, MEP) and carry the review stamp of the respective consultant.
- 2. Contract Drawings may be "red-lined" for shop drawing submission.
- 3. Only shop drawings that have been stamped "approved by Contractor" will be accepted for review.
- 4. Show complete roof layout and orientation of membrane. Show all required flashing layouts and types.
- 5. Show details of field-cutting required for elements projecting above and through the roof including, but not limited to, drains, pipe supports, curbs.
- 6. Show all required fastening types (mechanical anchors, adhesives), spacing, and layout. Indicate compliance with code requirements specified.
- 7. Show details at construction tie-ins/water cut-off as follows:
 - a. Existing roofing to temporary roof;
 - b. Temporary roofing to final roofing.
- 8. Submit roof plan with protection board layout, showing board cuts at perimeter/penetrations.
- 9. Membrane Integrity Examination (EFVM).
 - a. Layout of conductor wires with location of feed wire locations.
 - b. Flashing elements for feed wires and attachment of connection boxes.

D. Application for Manufacturer's Warranty

- 1. Contractor shall submit completed Manufacturer's Quality Control Compliance Documentation and application form for warranty.

2. Submittal shall contain all technical information applicable to the project, including deck types, substrate and/or deck slopes, surface preparation/treatment and/or insulation assemblies (with method of attachment). The application for warranty form must bear the acceptance signature of the Material Manufacturer.

E. Warranties

1. Submit copy of warranty of Material Manufacturer and Contractor. Submission shall reflect specified warranty coverage requirements per Item 1.10 of this Section. Warranties shall be submitted together with Contractor bid or prior to bid award.
2. Written statement of Material Manufacturer and Contractor indicating acceptance of Item 1.10 Warranty of this section is mandatory. Statement shall be submitted together with Contractor bid or prior to bid award.

F. Manufacturers'/Contractors' Review

1. Before commencing work submit written statement signed by the Manufacturer/Contractor stating that the Contract Documents have been reviewed by qualified representatives of the Material Manufacturer/Contractor, and that they are in agreement that the selected materials are proper, compatible and adequate for the application shown, and that the conditions and details are not in conflict with the warranty coverage specified herein.
2. Certifications shall be on company letterhead, signed by an officer of each company.
 - i. Certificates: product certificates signed by manufacturers certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - ii. Substrate Acceptance (temporary and final roofing). Submit a certified statement issued by the Material Manufacturer and countersigned by the Contractor, attesting that areas to receive the work have been inspected and found satisfactory for the reception of this Work, and are not in conflict with the products and warranty coverage specified. Submission shall clearly state extent of substrate acceptance in the event acceptance is granted for less than the entire project. Application of any material will be construed as acceptance of surfaces.
 - iii. Certify that all materials used in the construction of this work meet dimensions/mass and physical/mechanical properties (Manufacturers "Certificate of Analysis").
 - iv. In-Progress Certifications. Submit written certificate of compliance jointly signed by Contractor and Manufacturer, stating that installation of new roofing (temporary/final) is in accordance with Contract Documents, in accordance with Manufacturer's printed installation instructions, and that substrate materials/conditions have been inspected and found acceptable for the installation of the new/temporary roofing. Certificate shall be on Manufacturer's letterhead and shall be signed by an officer of the Manufacturer/Contractor.

G. Permits/Certificates of Fitness

1. Submit torching permit.

2. Submit a Certified Torch Welder certificate for each mechanic.
3. Submit certificates of equipment fitness.

1.01 FIELD TESTING

- A. Conduct the following testing where required in the scope of work, as part of pre-application testing, and as QC element during the installation. Testing shall be conducted with the a representative of the Material Manufacturer and Consultant present; submit test results with written acceptance of Material Manufacturer.
- B. Moisture Content - Concrete/Cementitious Substrata
 1. Determine moisture content of concrete/cementitious substrates in accordance with an ASTM test method approved and accepted by the Material Manufacturer as follows:
 - a. ASTM F2170-11
 - b. ASTM F1869-11
 - c. Hygrometer Test
 - d. Electrical Resistance Test
 - e. Glass Sheet Test
 - f. Plastic Sheet Test
 - g. Rubber Mat Test
 2. Contract Documents require use of moisture testing i/a/w ASTM F2170-11; other test methods require the approval/acceptance of the Material Manufacturer. Testing frequency shall be as directed by the Material Manufacturer, but not less than two (2) tests per 5,000 sf.
- C. Pull-Off Resistance
 1. Adhesion Testing of Unreinforced/Reinforced Coatings:
 - a. Conduct testing in accordance with ASTM D4541 using a portable, hand-operated testing unit.
 - b. Acceptable Testing Unit: ELCOMeter 106 (Scale 1 or 2).
 2. Field Adhesion Testing of Modified Bitumen Sheet Membranes:

135⁰ to 180⁰ hand peel test of one inch (1") wide membrane strip separated from adhered membrane section.

Test to be employed only with written consent of Material Manufacturer.
- D. Integrity Examination (Electronic Method)

Conduct electronic integrity examination of complete waterproofing (prior to installation of overburden materials). Provide the following documentation:

 1. CAD drawing of test drawing identifying stationary wire and locations of breaches in the membrane cover.

2. Provide "Roofing Integrity Certificate" that roofing membrane composite has been tested and found to be without breaches.

1.02 DELIVERY, STORAGE, and HANDLING

- A. Deliver, store, and handle all materials to prevent damage. Contractor's crew shall be fully trained/certified in the transport, storage, handling, application, and disposal of materials specified herein or employed by the Contractor during the course of the Work.
- B. Coordinate storage locations with the Owner or his designated Representative. Materials shall be stored in quantities that do not exceed allowable structural capacity, do not damage substrate materials, hinder installation or impair storm water drainage.
- C. Materials shall be delivered to site in original tightly-sealed or unopened containers/packages with each container/package bearing label of Manufacturer. All materials shall be labeled as to size, type, physical, performance characteristics and agency approvals.
- D. Storage and handling of materials shall be strictly in accordance with the requirements/ recommendations of the Material Manufacturer, including but not limited to the following:
 1. Materials shall be supplied dry and shall be kept dry at all times prior to application. Materials shall be stored in an enclosed, dry storage space. Closely observe Material Manufacturer temperature requirements (minima/maxima) for outside (on-site) storage.

Handle all materials to prevent damage. Remove factory plastic wrap to preclude condensation. Store materials elevated and fully protect from moisture using suitable opaque, reinforced tarping, secured to prevent displacement and exposure of materials.

Materials indicating moisture content above equilibrium shall be rejected as unacceptable. Ensure adequate ventilation to prevent condensation.
 2. Roll goods shall be stored vertically on clean, dry surfaces on platforms. Rolls with damaged ends or flattened rolls shall not be used.
 3. Deliver, store, and handle all classified products, such as solvents, resins, etc. in strict accordance with the applicable MSDS data sheet.
 4. Deliver, store, handle all materials in accordance with the local building and fire authority based on MSDS information of the respective material Manufacturer.
 5. Dispose of all materials in accordance with the provisions/requirements of the respective MSDS data sheet.

1.03 PROTECTION

- A. General - Protection of facilities shall comply with the provisions of the Contract documents and as specified herein.
- B. Building Exterior

Building walls above and below work areas shall be protected to prevent soiling, stains, or spills at all hoisting points or perimeter work locations. Contractor shall be responsible to restore pre-construction conditions.

C. Work Area / Material Storage

1. Provide barricades, retaining ropes, and any appropriate signage required by OSHA and/or the Owner or his designated Representative.
2. Provide and maintain workplace safety per the requirements of OSHA and NIOSH.
3. Store Materials in accordance with Item 1.07 of this Section.

B. Open Flame Torch Protocol

1. Designate one (1) person on each crew to perform daily fire watch. Designated person shall be equipped with a suitable, hand-held infra-red thermometer. Fire watch shall continue for a minimum of one (1) hour post termination of open flame or hot air operations. Test areas with infra-red thermometer to assure absence of hot spots.
2. Torch applicators shall be Certified Roofing Torch Welder per the requirements of the MRCA CERTA - Certified Roofing Torch Welding Applicator Program, or approved equivalent.
3. Conduct all torching operations in strict accordance with the requirements and recommendations CERTA, and of applicable Industry Organizations and Code Authority.

C. Odor/Dust Protection

1. Implement and maintain protection systems to prevent odor and dust penetration to building interior.
2. Protection systems shall be designed/coordinated between Owner (or his designated representative), Contractor, and field tested at off-hours and shall include, but not be limited to, the following:
 - a. Sealing of air intakes or placement of suitable filters.
 - b. Sealing of entrances, windows, louvers and other wall openings.
 - c. Implementation of workplace safety measures in compliance with OSHA/NIOSH, local governing authority, and Owner's requirements.

D. Against Load

1. Do not store material/equipment on completed work of this section.
2. Where due to work sequence storage of material/equipment on completed sections is required, Contractor shall provide protection suitable in extent and scope to prevent damage (latent and patent) to the roofing (final, temporary) and the structure.

As a minimum, protection shall consist of extruded polystyrene (2"), PE sheathing (0.008"), and exterior grade plywood boards and shall take into consideration the material characteristics of the underlying roof composite. Protection shall be placed over cleaned substrata, secured to prevent displacement by roof activities and wind loads typically experienced at the project site.

3. Areas utilized for storage and related traffic shall be coordinated with the Owner (or his designated representative) and clearly delineated by the Contractor. Areas, upon release from storage and related traffic, shall be re-tested in accordance with the EFVM integrity test protocol defined in this Section.

E. Against Traffic

1. Traffic is not permitted across completed sections of the waterproofing application except for workmen performing the work.
2. The Contractor shall plan/coordinate installation progress to prevent traffic across completed or partially completed sections. Where traffic, across completed or partially completed sections is necessary, Contractor shall provide protection in accordance with Item 1.08 / F. / 2. above.
3. Areas subject to construction and/or related traffic shall be coordinated with the Owner (or his designated representative) and clearly delineated by the Contractor. Areas shall be re-tested in accordance with the EFVM integrity test protocol defined in this Section.

B. Rejection of Damaged Work

1. Roofing Contractor, jointly with Owner or his designated Representative and Material Manufacturer's Representative shall investigate completed sections of the work.
2. Damaged roofing or roofing components will be rejected.
3. Replace damaged roofing components with new brand materials. Replacement will be at Contractor's expense.

1.01 ENVIRONMENTAL CONDITIONS

- A. Application of materials shall not commence nor proceed during, or under the threat of inclement weather.
- B. All surfaces to be joined shall be completely dry and free of condensation, dew, frost, or other forms of moisture.
- C. Prior to and during installation of materials, all dirt, dust, and debris shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air, or similar methods.
- D. Do not commence or continue with installation of insulation during periods of excessive winds when the safety of personnel may be endangered and/or proper installation may be compromised.
- E. Do not commence with installation of membrane or flashing when air temperature is below 40°F or 40°F and falling unless work environment is approved by and/or in accordance with site-specific application protocol established by the Material Manufacturer(s). Monitor dew point at/below ambient temperatures of 50°F. Maintain application log for material applications at temperatures below 40°F.

1.10 MANUFACTURER'S REPRESENTATIVE

- A. Manufacturer shall assign one qualified technical representative for the duration of the project.
- B. The technical representative shall perform weekly inspections during the application to verify application methodology, including, but not limited to, substrate preparation, substrate moisture content, and tensile bond strength of membrane composite to substrate materials. Inspection duration/frequency shall ensure that application meets quality for issuance of specified warranty coverage.

- C. Observations of the technical representative shall be provided in the form of a field report submitted to the Contractor, Owner (or his designated representative), and Waterproofing Roofing Consultant.
- D. Costs associated with the Manufacturers' inspections shall be part of Contractors' bid.

1.11 WARRANTY

- A. Work of this Section is part of total systems warranty as specified in Section 019000 (Roofing Close-Out).

1.12 BIDDING REQUIREMENTS

A. Pre-Bid Conference

- 1. A pre-bid conference shall be held with at the site with mandatory attendance by Contractor, Material Manufacturer(s), Testing Agencies, Owner or his designated Representative and all involved trades to discuss all aspects of the project. The Contractor's field representative or roofing foreman for the work shall be in attendance.

B. Site Visit

- 2. Bidders shall visit the site and carefully examine the areas in question as to conditions that may affect proper execution of the work. All dimensions and quantities shall be determined or verified by the Contractor. No claims for extra costs will be allowed because of the lack of full knowledge of the existing conditions.

PART 2 - PRODUCTS

1.01 MODIFIED BITUMEN ROOF MEMBRANE

Provide a complete system, by a single manufacturer, for undivided responsibilities. Materials and methods of installation shall comply with the warranty requirements specified herein.

A. Manufacturer

Products of the following Manufacturer that retain physical property values listed in Part 2 of this Section will be acceptable for use on the Project:

- 1. Siplast, Inc.

B. Roof Membrane Composite

1. General

Roof membrane shall consist of a minimum two (2) ply composite of prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membranes. Membrane products shall be suitable for application using open-flame torching method.

- 2. Base Ply [Modified Bitumen]. Membrane shall consist of a smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 - Type II, Grade S (min. thickness 134 mils) - "Siplast Paradiene 20 EG TG".

3. Cap Ply [Modified Bitumen]. Membrane shall consist of a coated/surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Membrane shall be suitable for extended exposure to the elements prior to placement of protective overburden. Product shall meet/exceed requirements of ASTM D6162 - Type II, Grade S (min thickness 154 mils) - "Siplast Teranap 1M Sand".
- A. Flashing Membrane Composite
1. General

Flashing shall be field-constructed of 2-ply of approved membrane, including stripping ply, as shown on enclosed drawings. Membrane products shall be suitable for application using open-flame torching method, or self-adhered, as noted on Drawings or mandated by substrate composition. Flashing shall be field-constructed over acceptable substrata, prepared, cleaned and primed in accordance with this specification. Flashing (cap) membrane shall be surfaced with an approved mineral aggregate to effect full embedment and coverage, and sealed with approved sealer/color coat.
 2. Flashing Membrane
 - a. Stripping Ply [Modified Bitumen]. Membrane shall consist of a smooth surfaced prefabricated, reinforced, homogeneous styrene-butadiene-styrene (SBS) block co-polymer modified asphalt membrane. Product shall meet/exceed requirements of ASTM D6163 - Type I, Grade S (min. thickness 110 mils).
"Siplast Pro Base TG, or Siplast Pro Base SA"
 - or
 - b. Stripping Ply [Field-Fabricated Resin Membrane]. Reinforced, cold fluid-applied (CFA) resin membrane, including all system-related accessories supplied by the Material Manufacturer. "Siplast Parapro 123 Flashing System".
 - c. Flashing (Cap) Membrane [Field-Fabricated Resin Membrane]. Reinforced, cold fluid-applied (CFA) resin membrane, including all system-related accessories supplied by the Material Manufacturer. "Siplast Parapro 123 Flashing System".
 - d. Mineral Aggregate Surfacing and Sealer/Color Coat
 - i. Embedment Agent (Resin)

Mineral aggregate surfacing shall be embedded in supplemental resin coat approved by the Material Manufacturer.
 - ii. Kiln-Dried Silica/Quartz Sand

Sand shall be washed, kiln-dried and dust free provided by the Material Manufacturer. "Siplast Pro Natural Quartz".
 - iii. Color Coat

Pigmented, multi-component, fast curing PMMA resin.
"Siplast Pro Color Finish Resin".

B. Accessories

1. Prefabricated Accessories

Supplied by Membrane Manufacturer. Use prefabricated accessories where possible to eliminate site fabrication and as required by Membrane Manufacturer to obtain specified Warranty.

2. Asphalt Flashing Cement

Meet or exceed requirements of ASTM D-4586, Type II, asbestos-free.

3. Asphalt Flashing Adhesive

Single-component, solvent-free modified asphalt adhesive provided/approved by the Modified Bitumen membrane manufacturer.

4. Asphalt Primer

VOC/OTC compliant primer as recommended by the Material Manufacturer.

5. Epoxy Primer (Moisture Mitigating Primer)

2-component, moisture tolerant, low viscosity, solvent-free, epoxy-based coating.
“Siplast Pro Primer E”.

6. Roof Protection (Temporary)

Roof protection shall be employed to prevent damage to partially or completed new roofing, and shall include one or a combination of the materials listed below:

- a. Asphaltic Hard Board with a thickness of 1/8".
- b. Polyethylene sheathing (thickness of 0.010") with six inch (6") side/end laps.
- c. Extruded Polystyrene (XPS) @ 40 psi min; thickness: 2" min.
- d. Exterior Grade Plywood; minimum thickness: 5/8".
- e. Ballast. As required to prevent displacement by wind forces, etc.

7. Application Equipment

Equipment suitable for application of torch-grade membranes and cold-fluid applied membranes per the requirements of the Membrane Material Manufacturer.

8. Flashing Paste

Multi-component, non-fibrated PMMA resin.
“Siplast Pro Paste”.

9. Cementitious Fill

One component, rapid hardening, early strength gain cementitious patching mortar. For thickness greater than 1 inch, extend with 3/8 inch pea gravel.
“SikaQuick 1000”.

1.01 ROOF DECK INSULATION SYSTEM

A. Extruded Foam Plastic Insulation

Extruded polystyrene board insulation. Insulation shall be flat stock and conform to ASTM C-578 with a minimum compressive strength of 40 psi. Insulation thickness shall be four inches (4").
“DuPont Roofmate”.

1.02 PREFABRICATED DRAINAGE PANEL

A. Prefabricated drainage panel. Multi directional core, geotextile covered, high flow capacity, interlocking, high compression strength prefabricated drainage panel.
“Siplast Paradrain”.

1.03 PROTECTED MEMBRANE ROOF PANEL

A. Panels. Pre-manufactured panels of extruded polystyrene insulation with a 15/16" latex-modified concrete topping. Panels shall be 2'x4" with tongue-and-groove connection. Panels shall weigh 11 pound per square foot (psf). Total panel thickness shall be three and fifteen-sixteenth inches (3 15/16").
“T-Clear Corp. HeavyGuard”.

B. Supplemental Securement

1. Strapping. Three inch (3") wide x 22 ga. s.s.
2. Fasteners. TPR-2 fasteners, or as approved by the Material Manufacturer.

1.04 RELATED MATERIALS

A. Wood Nailers/Blocking

Wood nailers/blocking shall be treated for fire and rot resistance (wolmanized or osmose treated) and be #2 quality or better lumber. Creosote or asphalt-treated wood is not acceptable. Wood nailers/securement shall conform to Factory Mutual Loss Prevention Data Sheet 1-49.

B. Plywood

Plywood quality/grade shall conform to the requirements of the Material Manufacturer. Plywood shall be fire-resistant, pressure-treated exterior grade for fire-resistance, having a minimum grade of A/C or C/C plugged/sanded. Thickness shall be 1/2" min. or as shown on Drawings.

1.05 REJECTED MATERIALS

- A. The Owner or his designated Representative shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements or the intent of the scope of work shall be removed from the Owner's premises by the Contractor within one (1) day of verbal notification, which will be followed by written confirmation.

PART 3 - EXECUTION

1.01 PRE-INSTALLATION MEETING & COORDINATION

- A. Prior to the start of the Work, and at the Contractor's direction, meet at the Project site to review methods and sequence of installation, special details and conditions, standard of workmanship, testing and quality control requirements, job organization and other pertinent topics related to the Work.

The meeting shall include the Structural Engineer, Waterproofing Consultant, Contractor's Project Superintendent, Material Manufacturer's representative, inspection and testing services (if any) and any other subcontractors whose work requires coordination with this work.

- B. Coordinate work of this Section with the work of other trades. Do not commence with any work of this Section, unless the work, or portions thereof, has been cleared for application.

1.02 CONDITION OF SURFACES

- A. Remove and discard all existing roofing above roof deck in its entirety (ref. Section 020610 - Selective Roof Demolition and Removals).

Conduct removal in a manner that permits daily installation of new roofing or functional temporary roofing including flashing systems at perimeters and penetrations to provide and maintain a watertight building interior throughout the work.

- B. Complete and/or coordinate repair/replacement of existing roof deck. Coordination shall include protection of the building interior, scheduling with Owner/Building Occupants, and exterior temporary protection/waterproofing.

- C. Contractor shall verify that the work required/completed under this or related sections meets the following conditions:

1. Vents, drains, cants, blocking, equipment support on or penetrating the deck have been positioned, secured and/or supported.
2. All surfaces are smooth and free of dirt, debris and incompatible materials.
3. All surfaces are free of ice, water and snow.
4. Concrete/Cementitious Decks. Moisture content is below specified minima.
5. Roof deck repairs/replacement have been completed and accepted by Owner's Structural Engineer or his designated Representative.

1.03 PREPARATION OF SUBSTRATE

A. General

1. The roof deck (included existing roof construction where retained) must be structurally sound to provide support for the new roof system. The Owner or his designated Representative shall ensure that the roof deck is secured to the structural framing according to local building code, resist all anticipated wind loads, and support new roof system loads.
2. Any substrate to receive new or temporary roofing (including flashing), shall be clean, dry, free of loose, spalled or weak materials, free of corrosion, oil, grease, contaminants, including but not limited to adhesives, water stops, water cut-off, abrupt changes in level, and free of projections which could affect the installation and/or damage the roofing.
3. Do not proceed with the installation of roofing, until vents, drains, cants, blocking and other projections through the decks have been positioned, secured and/or supported.
4. Where preparation of substrate materials requires the use of power driven or actuated tools, observe applicable use instructions and safety requirements.
5. Before installation of any roofing materials (temporary roofing and final roofing), the Material Manufacturer shall inspect substrate and issue written acceptance. Any corrections shall be implemented prior to the commencement of the Work.
6. Application of any component of the Work by the Contractor shall indicate suitable and acceptable surfaces in accordance with the Contract Documents.

B. Concrete Deck Substrata

1. New concrete shall be cured for a minimum of 28 days in accordance with ACI-308, or as recommended by the concrete/mortar manufacturer to obtain a minimum hardness of 3,500 psi (25N/mm²) with a maximum moisture content as stated under Item 3.03-B.3.

Light-weight structural concrete, with light-weight aggregate, shall not be used.

Repairs of existing concrete shall be performed using a single-component, rapid-curing, early-strength cementitious patching compound. Patching compound shall be cured/protected as recommended by the Material Manufacturer. Patching compound shall exhibit a maximum moisture content as stated under Item 3.03-B.3 following a cure period of 5 days.

2. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials. De- grease concrete, where required, via detergent washing in accordance with ASTM D-4258 or through use of de-greasing agent approved or recommended by the Material Manufacturer. Obtain Material Manufacturer's written approval to proceed with direct application of roof and/or flashing membranes.
3. New or existing concrete shall be dry with a maximum moisture content of 5% percent and 75% relative humidity. Determinations as to moisture content shall be performed by the Contractor using methods/equipment approved by the Material Manufacturer. Contractor shall be responsible to

perform periodic evaluations as to substrate moisture content during the work. Moisture evaluation results shall be submitted in writing to the Material Manufacturer for acceptance.

4. Concrete substrate may require abrasive cleaning in accordance with ASTM D4259/ICRI to provide a sound substrate free from laitance and with an open concrete surface. Provide surface profile of CSP 3 or 4 i/a/w ICRI "Technical Guideline No. 03732 or as approved via substrate preparation mock-up.
5. The entire substrate shall be sounded and inspected. All spalls, voids, blow holes, and other deterioration or depressions shall be repaired in accordance with the requirements of the Material Manufacturer.

Route cracks and repair in accordance with the requirements of the Material Manufacturer. Cracks with an average width of 1/4" or larger shall be treated with a bond-breaker tape, following routing and filling with approved filler material.

6. Areas of surface deterioration, in excess of surface profile stated above, shall be corrected to prevent possible ponding of components of the system, leading to excessive usage of primer and resin, reduced adhesion, and/or blisters. Substrate repair shall be conducted with approved leveling compound. Extent and location of thin surface patching shall require approval of the Owner or his designated Representative prior to the application of any system component.

C. Steel/Metal Substrata

1. General

- a. Steel and metal substrata shall be prepared to provide a clean and open surface.
- b. Cleaning/preparation shall extend vertically a minimum of three (3") inches past the projected flashing termination line. Protect substrata from corrosion or soiling; re-clean/prepare immediately prior to flashing application.

2. Ferrous Metal. Clean and prepare ferrous metal surfaces in accordance with SSPC-SP3 (power tool clean) as a minimum; or as required by the Material Manufacturer
3. Galvanized Steel. Remove galvanizing to expose underlying steel base; proceed per Item C.2 above. Apply field-galvanizing compound following completion of flashing.
4. Aluminum/Noble Metals (LCC, CRC, SS). Clean and prepare metals to provide an open surface.

1.01 PRE-APPLICATION TESTING / MOCK-UP CONSTRUCTION

- A. Construct mock-ups per Section 075300, Item 1.05 E; schedule inspections once shop drawings have been reviewed and returned with notations "approved" or "approved as noted".
- B. General construction shall not commence unless mock-up construction has been approved following inspection by Waterproofing Consultant/Material Manufacturer.

1.02 TEMPORARY WATER CUT-OFF CONSTRUCTION

- A. Construct functional water cut-offs at the end of each workday.

- B. Water cut-offs shall be of sufficient quality and durability to withstand protracted periods of inclement weather and to preclude water intrusion into the building interior and/or the final roof system. Contractor shall assume a minimum performance horizon of six (6) months.
- C. Water cut-offs shall not hinder, preclude or interfere with storm water drainage.
- A. Water cut-offs shall be constructed to preclude interference with any component of the final roofing and permit removal without damage to the final roofing.
- B. Fully remove water cut-offs upon resumption of the Work.

1.03 INSTALLATION OF ROOF MEMBRANE

A. General

1. Membrane Application. Apply waterproofing membrane in accordance with the requirements/ recommendations of the Material Manufacturer and Standards of the Industry.
2. Installation of membrane shall be accomplished in such a way that each area will be complete at the end of each day of work with provisions of storm water drainage. All membrane edges and flashing shall be protected against water entry at all times in accordance with the Membrane Manufacturer's printed instructions. Cut-offs and temporary protection shall be completely removed prior to resumption of work.
3. Phased application of membrane is not acceptable unless approved in writing by the Material Manufacturer. In the event phasing is permissible, clean and prepare base sheet in accordance with the Membrane Manufacturer's printed instructions prior to application of cap sheet.
4. Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining plies. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.
5. Open-Flame Torch Application
 - a. Only use equipment which is approved and recommended by Industry Organizations and the Material Manufacturer. Strictly follow safety and operating instructions provided by the Manufacturer of the torch system. Heat membrane consistently to temperatures recommended by the Material Manufacturer.
 - b. Contractor shall thoroughly train all personnel anticipated to use open-flame torching equipment prior to starting application. Follow use and application guidelines for open-flame torching such as Certified Roofing Applicator (CERTA) by MRCA or approved equivalent.
 - c. Conduct fire prevention inspections during the membrane/flashing torching operations. Fire prevention inspections and fire watch shall be performed by one (1) designated person for the project duration. Maintain daily fire watch for a minimum of one (1) hour after completion of all torching operations. Fire watch shall be equipped with a suitable infra-red thermometer to scan the area. Maintain fire watch log and submit as part of close-out documents.
 - d. Do not allow torching devices to come in contact with flammable materials. Inspect substrate surfaces, walls, abutments and all surrounding surfaces prior to use of torching device so that

necessary precautionary measures can be implemented. Use caution when working around roof top equipment, supply lines or mechanical equipment which may have electrical and/or fuel connections.

- e. Keep torch flame moving at all times, failure to do so may result in ignition of surface and/or underlying materials.
 - a. Avoid prolonged contact with heat sensitive materials, as overheating of these materials could ignite underlying flammable materials.
 - b. DO NOT use propane except in well ventilated areas.
 - c. Check all fittings and other equipment on the application equipment for leakage. Never use a flame to check fittings and other equipment.
 - d. Propane tanks are pressurized. Do not puncture. Do not expose to excessive heat. Maintain tanks at a minimum safe distance away from the torch flame.
 - e. Containers which contain or may have contained flammable material must be kept clear from torch or other heat source.
 - f. Never place a hot torching device on the roof surface, insulation or any other surface or object other than an acceptable stand or holder or fireproof surface. Never leave a lighted torch unattended. Allow torching device to cool completely to room temperature before removing it from roof.
 - g. Never use a torching device to apply any material other than modified bitumen membrane specifically formulated for torching application.
 - h. Provide and maintain a minimum of two (2) code approved fire extinguishers in the immediate work area.
- 2. For substrates that absorb asphalt it is necessary to apply the asphalt in sufficient quantity to assure the level of adhesion specified.

B. Priming

- 1. Modified Bitumen Membrane. Prime concrete/cementitious substrata, metal flanges, concrete, and masonry surfaces with a uniform coating of approved primer following substrate cleaning and preparation. Limit exposure of primer to the elements to a maximum of 12 hours after application.
- 2. Reinforced, Cold Fluid-Applied Resin (CFA). Prime all substrate material as required by the Material Manufacturer, following substrate cleaning and preparation. Do not overexpose primer; re-active primer as required by the Material Manufacturer.

C. Roof Membrane Composite

Apply all layers of membrane composite in strict accordance with the requirements of the Material Manufacturer. Membrane composite shall be fully bonded, free of wrinkles, creases or fish mouths. Exert sufficient pressure on the roll during application to prevent air pockets. Lap seams (end and side laps) in the base ply shall not coincide with the lap seams of the cap ply. Stagger all plies to eliminate stacked membrane lap seam.

Apply membrane plies perpendicular to slope of deck. Arrange side laps with the flow of water. Treat T-joints at intersection of end/side laps as shown on enclosed drawings and as required by the Material Manufacturer.

D. Flashing Application

Provide system with base flashing, penetration flashing, counter flashing, and all other flashing required and necessary for a complete watertight system. Flashing shall be constructed in accordance with the requirements and recommendations of the Material Manufacturer, as shown on enclosed Drawings.

It is the intent of this specification that all penetrations through the roofing system, either horizontally or vertically, are to be flashed per enclosed Drawings, or in the absence of project-specific drawings per the requirements of the Material Manufacturer or Standards of the Industry. Where flashing is identified to be constructed per verification in the field and/or approved mock-up construction, Contractor's Bid shall include labor, materials, accessories and equipment required to construct flashing, which as a minimum, meet the general intent of the Contract Documents for application quality and warranty coverage specified.

E. Localized, Shallow Water Ponding

1. Evaluate storm water drainage after placement of modified bitumen base sheet.
2. Identify areas of localized water ponding with a depth of more than 1/16"; submit roof plan depicting location, size and depth of water pond(s).
3. Areas shall be treated with leveling ply(ies) of approved modified bitumen membrane (where approved by the Material Manufacturer).

1.04 MEMBRANE INTEGRITY TESTING - EFVM

A. Membrane integrity testing shall be conducted by an approved Testing Agency as follows:

1. Final Roofing, prior to placement of overburden (Base Bid).
- B. Feed wires shall be retained and secured to the roof membrane per the requirements of the Testing Agency. Extend feed wires above the overburden, protected with an approved conduit and terminated within an approved connection box secured to the structure (locations to be verified in field). Each connection box shall service an area not exceeding 25,000 sf. (min. two (2) connection boxes per roof).

1.05 INSTALLATION OF OVERBURDEN MATERIALS

A. General

1. Membrane protection, subsurface drainage element, insulation, roof panels and ballast, collectively referred to as "overburden", shall be placed over new waterproofing and flashing.
2. DO NOT commence with the application of any element of the overburden composite, unless the following criteria have been satisfied:
 - (1) New waterproofing and flashing has been inspected by a representative of the material manufacturer and approved for warranty coverage;
 - (2) New waterproofing and flashing integrity has been successfully verified;
 - (3) New waterproofing and flashing have been thoroughly cleaned of all loose or attached materials that are not part of the membrane construction.

3. Apply overburden in its entirety as each waterproofing segment is completed. Provide sufficient material extensions to allow for tie-in of phased elements of the overburden. Protect leading edge of the overburden application against debris and damage.
1. Monitor application of overburden materials. Replace damaged, warped, torn or distorted materials. Immediately correct any deficiency of the waterproofing or the overburden installation.

B. Prefabricated Drainage Element

1. Apply approved drainage element in strict accordance with the requirements of the Material Manufacturer.
2. Prevent particle intrusion to the cavity between waterproofing and drainage composite; where particle intrusion has occurred or is suspect of having occurred, expose affected area(s), remove particles and reinstall drainage mat and over elements of the overburden.
3. Protect membrane with separate protection/separation layer where required by the Manufacturer of the waterproofing (to obtain specified warranty coverage), where shown on enclosed Drawings or where specified.
4. At horizontal and vertical terminations/connections, wrap filter fabric over edges of the drainage composite and extend for not less than six (6") inches on the underside of the drainage composite. Furnish and install supplemental filter fabric where shown on enclosed Drawings.

C. Roof Deck Insulation System

1. Insulation shall be installed over approved prefabricated drainage element.
2. Place insulation in strict accordance with the requirements of the Material Manufacturer. Place units of insulation with long joints continuous and end joints staggered by one-half board dimension. Broken boards shall be trimmed to straight edge and/or replaced with cut-to-fit boards as required.

1.01 PROTECTED MEMBRANE ROOF PANELS (HEAVYGUARD)

- A. Apply panels, including supplemental securement, in strict accordance with the requirements of the Material Manufacturer.
- B. Perimeter/Penetrations - Supplemental Securement. Provide approved securement using approved metal straps and/or pre-cast concrete pavers as shown on enclosed Drawings.
- C. Provide approved supplemental securement at locations where the tongue-and-groove integrity is lost/eliminated at locations including but not limited to penetrations, plane changes or where required by the Material Manufacturer to maintain panel cohesion.
- D. Apply approved protective coating at locations where the extruded polystyrene insulation is exposed.

1.02 PRE-CAST CONCRETE PAVERS

- A. Approved pre-cast concrete pavers shall be applied with care to prevent damage to any component of the new roofing system and its overburden.

- B. Adhere pavers, to underlying protected membrane roof panels, as required by the material manufacturer.

1.03 PROTECTION

The Roofing Contractor shall fully protect new roof system (temporary and final) from all trades during roof construction and after completion. Any damage to the system shall be repaired prior to quality control inspection.

1.04 CLEAN-UP

The Roofing Contractor shall remove all masking, protection, equipment, materials, and debris from the work and storage areas and leave those areas in an undamaged and acceptable condition.

1.05 MANUFACTURER'S INSPECTIONS

- A. Inspections shall be made by a representative of the responsible Membrane Manufacturer. The Contractor shall arrange for these inspections and notify the Owner or his designated Representative each time the Membrane Manufacturer's Representative is present at the job site. These inspections shall be in addition to any inspections which may be made by an employee or representative of the Owner or his designated Representative. Written reports of the Membrane Manufacturer's inspections shall be made, with copies to the Owner or his designated Representative and to the Contractor. Membrane Manufacturer shall inspect work at start, during and at completion.

- B. Inspections shall be made at such times and frequency as required to determine that:

1. Deck surface is acceptable to receive membrane.
2. Insulation surface is acceptable for roofing membrane prior to installation.
3. Materials, equipment, and application methods are in accordance with the Manufacturer's recommendations.
4. Completed work is in accordance with Contract Documents and qualifies for warranty coverage as specified.

1.06 FIELD QUALITY CONTROL

- A. Testing for conformance with requirements of Contract Documents may be employed by the Owner or his designated Representative.

- B. Testing Procedures

1. Check substrate for moisture and physical condition to determine suitability to receive materials.
2. Determine moisture content of materials.
3. Determine adhesion of waterproofing membrane to substrate.
4. Inspect flashings at deck openings and at perimeters.
5. Test membrane for specified physical properties.

1.07 WORKMANSHIP

Work of this Section that does not conform to specified requirements shall be corrected and/or replaced as directed by the Owner or his designated Representative, at Contractor's expense, without extension of time. Contractor shall also be responsible for cost of corrections to any work affected by or resulting from corrections to work of this Section.

END OF SECTION

075900 – LEAK DETECTION SYSTEM

PART 1 – GENERAL

1.1 SYSTEM DESCRIPTION

- A. Installation of the Leak Sentry leak monitoring system from Sentinel Roof Technologies that uses sensors and conductive media to actively monitor the roof for leakages and alert in real time on any anomalies. System is “always on”- manual testing is not required to know when there is a breach.
- B. Sections include:
 - 1. Electronic leak detection system with s full time computer monitoring of roof envelope.
 - 2. Monitoring grid establishing a single plane of testing at the base sheet level .
 - 3. Testing and measuring apparatus.

1.2 RELATED SECTIONS

- A. Section 075210 – Insulated Modified Bitumen Roofing

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate with other work having a direct bearing on work of this section including but not limited to, roofing.
- B. Pre-installation Meeting: Two (2) weeks before starting work of roofing membrane, with 1 month notice.
 - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.4 SUBMITTALS

- A. Product Data: Provide manufacturer’s data sheets for product components and accessories.
- B. Shop Drawings: Indicate plans, grid layout, dimensions, construction details, methods of anchorage, location and type of roof penetrations and roof drains.
- C. Indicate location of access closures, and wiring path from monitoring grids to access closures.
- D. Indicate location where grid cables will be terminated and area where monitoring electronics or future monitoring electronics will be installed.
- E. Test Reports: Test reports from approved ELD company verifying the integrity of the roof at the time of system activation.

F. Installation Data: Manufacturer's written installation requirements.

G. Test Protocol: Manufacturer's written description of testing method and protocol.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Indicate maintenance requirements for installed products and provide an OEM manual.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Must source Leak Sentry directly from Sentinel Roof Technologies.

B. Installer Qualifications: Company specializing in performing the work of this Section with minimum five (5) years documented experience and approved by the manufacturer.

C. Testing Agency Qualifications: Company specializing in performing the work of this Section with minimum ten (10) years documented experience and approved by the manufacturer.

D. Testing agency shall examine all surfaces to be tested. Testing agency shall notify roofing contractor of any and all conditions which, in his opinion, will affect satisfactory execution of the testing.

E. Installed sensors and cables must be protected from construction activities and traffic immediately (or as soon as possible).

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect electronic equipment and sensing and detection devices against potential damage from dust, moisture, and any other weathering elements.

B. Receive materials from manufacturer and store them in secure place and deliver them to the project site on the specified installation date(s).

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not install leak detection system to damp or frozen surfaces or during inclement weather.

B. Do not perform ASTM D-7877 testing unless environmental conditions are within parameters of testing criteria.

1.9 WARRANTY

A. Manufacturer's Warranty: Provide a two (2) year manufacturer's warranty on all components found inside the electrical panel to exclude coverage for failure to meet specified requirements.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Sentinel Roof Technologies – www.sentinelrooftechnologies.com
- B. leaksentry@sentinelrooftechnologies.com

2.2 EQUIPMENT

- A. Power Supply: Voltage supply to induce electrical potential to the light layer of water on top of membrane relative to the roof deck below. 110V Power to the panel must be supplied by others.
- B. Sensor Controller Board: Automated switching and measurement unit that facilitates the rapid connection to and testing of the monitoring grid installed in and on the roof assembly. Ingress into the panel location for the sensor wires must be provided by others.
- C. Data Collection Microcomputer: Device to collect data from the sensor controller board, send signals to the monitoring grid, and send data out to the cloud monitoring system.

2.3 COMPONENTS

- A. Moisture detection sensors: 2" or 1.5" Stainless Steel Sensor Pucks, 1/16" 316 Stainless Steel Cable, and any form of adhesion necessary shall be installed directly on top of the base sheet.
- B. Conduction Media: A conductive metal wire mesh shall be installed by roofing contractor below the coverboard.
- C. Access Closure: Metal box enclosure with space for cable terminations on terminal blocks and monitoring electronics and screw terminal barrier blocks for connecting grid cable and to provide field test access. Access closure to be watertight in exterior locations.
 - 1. Provide NEMA1 enclosure(s) built to the job specs directly below Southeast Main Roof in existing in Mechanical Room below. Note: Space is access by a ladder at the stage in the theater.
 - 2. Coordinate exact installation location with Architect.
- D. Electrical Cable and Accessories: Network data cable to be supplied by others as well as a static IP internet connection or other system providing a broadband internet solution. Manufacturer to provide all other electrical and data communication cables. When multiple panels are necessary, others must provide conduits connecting each panel to pass data cables through.
- E. Monitoring Requirements:
 - 1. Provide a real time monitoring system which is "always on" and sends alert via email and/or SMS in the event of a breach.
 - 2. Provide quarterly reports on the condition and changes in the roof moisture readings.
 - 3. Generate roof maps of moisture content based on weather condition, conductive media status, and seasonality.
 - 4. Provide real time system status on all components and alert if any components go offline.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that membrane penetrations are of a non-conductive material or are electrically isolated or insulated by applying applications of additional layers of non-conductive waterproof material or other electrically insulating materials.
- B. Verify that flashing materials insulate exposed or other electrical ground.
- C. If low voltage Electronic Leak Detection is used for testing, verify availability of hose and water supply of sufficient length and at least 60 PSI to reach all points on surfaces to be surveyed by Electronic Leak Detection.
- D. Coordinate with responsible entity to correct unsatisfactory conditions.

3.2 PREPARATION (ELD)

- A. Membranes to be scanned to be broom clean and free of construction materials, equipment, and debris.
- B. Materials, debris, and equipment must be removed from area to be tested.
- C. Area to be tested must be dry.
- D. Grounds must be located for creating an electronic charge into the structural deck.

3.3 INSTALLATION – LEAK SENTRY MONITORING GRID

- A. Install monitoring grid to manufacturer's written instructions and approved shop drawings.
- B. Place a conductor with Type 316 stainless steel conductors in specified pattern on top of base sheet .
- C. Sensor spacing shall be a 10 x 10 foot grid.

3.4 INSTALLATION – ACCESS CLOSURE

- A. Install access closure to manufacturer's written instructions
- B. Install and terminate electrical cables from grid on approved screw terminal blocks or IDC connections blocks in access closure.

3.5 ELECTRONIC LEAK DETECTION

- A. Perform initial membrane scan to establish baseline conditions to equipment manufacturer's written requirements. (ELD ASTM D-7877-14)
- B. Verify wiring sequence, electrical continuity and the absence or shorts or grounds on grid system.

- C. Scan roof surfaces including inside and outside corners of parapets and equipment curbs. Use scanning equipment appropriate to the surfaces being scanned.
- D. Mark breach locations on membrane with a marker approved by the membrane installer and/or membrane manufacturer.
- E. Record location of membrane breach on sketch or drawings for communication with ELD installer and/or ELD inspector.

3.6 FIELD QUALITY CONTROL OF ELECTRONIC LEAK DETECTION

- A. Roofing Contractor Representative shall be present during leak detection testing.
- B. Roofing Contractor shall correct identified membrane defects or irregularities.
- C. Field Reports: Tester shall identify date, time, and weather conditions when surveys are conducted.
 - 1. Provide general description of scan/survey and process.
 - 2. Describe typical membrane breaches located and areas not accessible by scanning equipment.
 - 3. Document survey with photographs and plan view scale drawings with approximate locations of breaches noted.
 - 4. Document the retesting of breaches identified and repaired.

END OF SECTION 075900

SECTION 076200 - METAL FLASHING

AND TRIM PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

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

1.02 SECTION INCLUDES

- A. Fabrication and installation of metal components for flashing.
- B. Protection and restoration of metal flashing identified for reuse.
- C. Fasteners and anchors.
- D. Corrosion protection.
- E. Drains.

1.03 RELATED SECTIONS

The work of this part shall be in accordance with the applicable documents of the following:

- Division 2 - 020610 - Selective Roof Demolition and Removals
- Division 7 - 075210 - Insulated Modified Bitumen Roofing
- 075300 - Protected Modified Bitumen
- Roofing 079200 - Joint Sealants

1.04 QUALITY ASSURANCE

- A. Work shall conform to the latest edition of applicable reference specifications and to applicable codes and requirements of local authorities having jurisdiction.
- B. Conflicting Requirements

In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards of these specifications, the provisions of the more stringent shall govern.
- C. References

Some products and execution are specified in this Section by reference to published specifications or standards of the following (with respective abbreviations used):

- American Iron and Steel Institute AISI
- American National Standards Institute ANSI
- Copper Development Association CDA
- Federal Specifications FS
- The American Society for Testing and Materials ASTM
- Sheet Metal and Air Conditioning Contractors National Association SMACNA

- Steel Deck Institute
- National Roof Deck Contractors Association
- Single Ply Roofing Institute

SDI
NRDCA
SPRI

D. Standard References

1. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA): "Architectural Sheet Metal Manual," current Edition.
2. Revere Research and Development Center; "Copper and Common Sense".
3. Copper Development Association (CDA) - "Copper in Architecture".
4. National Association Sheet Metal Contractors "Standard Practice in Sheet Metal Work".
5. ANSI/SPRI ES-1/2003 "Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems".
6. ANSI.SPRI "Standard Test Procedure for Determining the Withdrawal Resistance for Roofing Fasteners - ANSI/SPRI FX-1-2006".
7. Installation Manual of Manufacturers of prefabricated metal elements.

E. Regulatory Agencies

1. Factory Mutual Global

Products and assemblies of the work of this Specification shall be secured to meet construction requirements of FM Global Loss Prevention Data Sheet 1-49 (current).

2. Underwriters' Laboratory (UL)

Products and assemblies in the work of this Specification shall provide fire resistance to meet construction requirements of UL Class A.

3. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

Sheet metal products and assemblies in the work of this section shall meet construction requirements of SMACNA.

4. Single Ply Roofing Institute (SPRI)

Sheet metal products and assemblies used for edge material shall meet securement requirements of ES-1-03 "Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems".

5. Workplace Safety

- a. OSHA Safety and Health Standard (21CFR 1926/1910), current edition.
- b. National Safety Council (NSC).
- c. National Institute for Occupational Safety and Health (NIOSH), current edition.
- d. NYC-DOB and other governing local code authority.
- e. ANSI A10.2 - Safety code for building construction.

f. Department of Environmental Protection

1.05 SUBMITTALS

A. General

All submittals shall be provided in accordance with the provisions of the Contract Documents and as specified herein. Submittals shall be submitted following project award.

B. Shop Drawings

1. Contract Drawings may be "red-lined" for shop drawing submission.
2. Only shop drawings checked and stamped "approved by Contractor and Fabricator" will be acceptable for review.
3. Show weights, gauges, or thicknesses of sheet metal. Show location, arrangement, dimensions, materials, fastenings, connections, anchorage, and relation to adjacent work.
4. Show nailers, blocking etc. required to be furnished for securing work of this Section.
5. Show closures, terminations, intersections, and splices in isometric details.
6. Shoring of masonry openings at locations of new metal counter flashing.
7. Installation of new roof drains/drain leaders, leader securement, and connection. Submit written acceptance of licensed Plumbing Engineer stating compliance with applicable code requirements. Submit work permit.

C. Samples & Mock-ups

1. Submit Samples (in duplicate) of the following:
 - a. Sheet metal of each type (min. 6"/6").
 - b. Anchors, screws, washers, etc. (2 each).
2. Mock-up Construction
 - a. Submit schedule of type and location of mock-up construction prior to commencement of the Work.
 - b. Approved mock-ups shall serve as the standard by which other work is to be installed and evaluated. Retain mock-ups during construction as standard for evaluating completed work.
 - c. Construct the following mock-ups:
 - i. Metal Flashing - each type 10 lf.
 - ii. Corrosion Protection; include substrate preparation, top/base coats - 1 lf each.
 - d. Notify Consultant 72 hours prior to mock-up construction. Provide required submissions inclusive of shop drawings prior to mock-up construction.
 - e. Mock-ups shall be used to field-determine required methods and tools, including but not limited to substrate preparation, substrate cleaning, application quality/appearance, joint construction.

D. Product Data

1. Complete list of all items proposed and required to be furnished and installed under this Section.

List shall designate specific Manufacturer and product designation along with specific quality reference (i.e., ASTM Specification No.).

2. Manufacturer's data required to demonstrate compliance with the specified requirements.
3. Material Safety Data Information (MSDS).
4. Air Quality Management (AQM). Provide written evidence that all products used in the construction of the work specified comply with current regulations concerning "Volatile Organic Content" (VOC) and the "Ozone Transport Commission" (OTC).

1.06 DELIVERY, STORAGE and HANDLING

- A. Comply with the provisions of the Contract Documents and as specified herein.
- B. Sheet metal items shall be handled carefully to prevent damage to surface, edges, and ends.
- C. Store at site and above ground in a dry location, free from physical abuse. Store materials in a manner to prevent staining from any form of moisture.

1.07 EXAMINATION OF CONDITIONS

- A. A portion of this project will involve sheet metal work. The Contractor shall field measure actual conditions to allow for accurate fabrication and installation.
- B. Drawings depict profiles, securement, materials, and certain other requirements. Sizes and dimensions to meet the intent of the Contract are the responsibility of the Contractor.

1.08 PROTECTION

- A. Protection of facilities shall comply with the provisions of the Contract Documents and as specified herein.
- B. Building Exterior

Building walls shall be protected adequately (with tarps or other suitable material) from soil, stains, or spills at all hoisting points. Contractor shall be responsible for preventing damage from any operation under this Contract. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
- C. Work Area / Material Storage
 1. Provide barricades, retaining ropes, and any appropriate signage required by OSHA and/or the Owner or his designated Representative.
 2. Provide and maintain workplace safety per the requirements of OSHA and NIOSH.
- D. Against Load

1. Do not store material/equipment on completed work of this section. Where due to work sequence storage of material/equipment on completed sections is required, protect work of this section against damage.
 2. Protection shall consist of plywood boards or similar material and shall take into consideration the material characteristics of both the roof membrane and the roof insulation.
- E. Against Traffic
1. Traffic is not permitted across completed sections of the roof except for workmen performing the work.
 2. Where due to work sequencing traffic is required, traffic paths shall be clearly defined, and completed roofing shall be protected with plywood boards or similar material. Protection shall take into consideration the material characteristics of both the roof membrane and the roof insulation.
- F. Rejection of Damaged Work
1. Roofing Contractor, jointly with Owner or his designated Representative and Material Manufacturer's Representative shall investigate completed sections of the work.
 2. Damaged roofing components and work will be rejected.
 3. Replace damaged roofing components with new brand materials. Replacement will be at Contractor's expense.

1.09 WARRANTY

- A. Work of this Section is part of the Contractor's Warranty as specified in Section 019000.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Shop/Field-Fabricated Sheet Metal
1. Stainless Steel
 - a. Conforming to ASTM A167, Type 304 alloy, with AISI 2D finish, or duller; fully annealed, dead soft.
 - b. Coefficient of expansion: 0.0000096 in./in./°F.
 - c. Tensile strength: 80,000 psi min.
 2. Aluminum
 - a. Conforming to ASTM B209, Type 3003-14 aluminum.
 - b. Coefficient of expansion: 0.0000129 in./in./°F.
 - c. Tensile strength: 22,000 psi min.
- B. Sheet Metal Thickness/Gauge
- Except as noted specifically otherwise in Contract Documents, thickness of metal shall be as noted on enclosed Drawings:
1. Stainless Steel

0.030 in/0.76 mm nominal thickness or as noted on enclosed Drawings.

2. Aluminum
 - a. 0.050 in/1.3 mm nominal thickness or as noted on enclosed Drawings.
 - b. Counter flashing/counter flashing extender.
Mill Finish: 0.040 IN.
 - c. Membrane-restraint, termination/pressure bars.
0.100 with integral caulk lip.

2.02 CORROSION PROTECTION

A. Concealed Steel Elements

2-coat protection consisting of primer and topcoats in compliance with requirements in force at time of application. Primer, and topcoats, shall be applied in contrasting color.

1. Primer. Aromatic PUR primer - Perime Prime Series 394 by Tenemec Co. Apply primer with dry film thickness (dft) of 3.0 mils (minimum).
2. Topcoat. 2-component aliphatic acrylic PUR - Endura Shield Series 1075 by Tenemec Co. Apply one (1) coat, with dry film thickness (dft) of 3.0 mils (minimum).
3. For exposed steel elements: Endura Shield Series 1075U by Tenemec Co. Apply two (2) coats, with dry film thickness (dft) of 3.0 mils (minimum) each.

B. Rust Converter

1. Rustoleum V 2100 System Rust Reformer.

2.03 ROOF DRAINS

A. General

All roof drains shall be manufactured of cast iron, including drain body, clamp ring and strainer, unless noted otherwise for a specific roof drain and/or the Drawings. Each drain must be provided with cast iron strainer containing an open area of at least 150% of the area of the drain.

B. IRMA-type Roof Drain

Cast iron body, perforated s.s. extension with secondary flashing clamp, cast iron top frame and cast iron dome strainer. J.R. Smith #1017 or equal.

C. Scupper Drain

Cast iron sleeve with integral flashing clam and adjustable wall flange. JR Smith #1730 or equal.

2.04 FASTENERS

A. General

1. Anchors shall be installed with a penetration depth of one (1) inch or dependent upon substrate materials and requirements of the respective Fastener and/or Material Manufacturer(s).
 2. All anchors shall consist of AISI Type 300 Series (304L, 316L) Stainless Steel (passive).
 3. All anchors shall be installed through slotted holes in sheet metal components to minimize deformation of sheet metal components due to temperature variations.
 4. All anchors shall be compatible with substrate materials and sheet metal components to be secured.
- B. Exposed Anchors
1. Anchors for attaching sheet metal to substrate materials shall be stainless steel screw fasteners (AISI Type 304L/316L) with hex-headed configuration.
 2. All exposed anchors shall be supplemented with 1" dia. washers consisting of AISI Type 304 or 316 Series Stainless Steel with 0.060" EPDM gaskets.
- C. Concealed Anchors
1. Sheet Metal to Concrete
 - a. Flat-headed nail-in anchors (minimum 1/4") with stainless steel nails. Or spring-tensioned compression anchors. Or as required by the Material Manufacturer.
 2. Sheet Metal to Wood/Steel
 - a. Fully threaded, flat (bugle) head anchors (minimum #14).
 3. Sheet Metal to Wood
 - a. 12 ga (minimum) nails with 3/8" flat head, annular thread with a minimum 1" penetration.
 4. Anchors shall be coated for corrosion protection and compatible with sheet metal to be secured.
- D. Rivets
1. 3/16" minimum diameter, closed rivets (tinner's rivets) fully compatible with metals to be secured. Closed rivets shall be used on lap joints where water tightness is required.
 2. 1/8" minimum diameter blind rivets fully compatible with metals to be secured. Blind rivets shall be used on lap joints where water tightness is not required.

2.05 REJECTED MATERIALS

The Owner or his designated Representative shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements or the intent

of the scope of work shall be removed from the Owner's premises by the Contractor within one (1) day of verbal notification, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 EXAMINATION OF SUBSTRATE

- A. Substrate shall be suitable to receive work of this Section. Work shall not commence until unsuitable conditions of substrate have been corrected.

3.02 GENERAL REQUIREMENTS FOR INSTALLATION

- A. Work shall be installed by skilled sheet metal mechanics in accordance with specified "Standard References" of this Section.
- B. Sheet metal shall be formed to profiles and from materials as shown on Drawings. Sizes and dimensions shall be defined from field measurements obtained by the Contractor.
- C. Work shall conform to industry practice except as required specifically otherwise.
- D. Sheet metal shall be fabricated/installed in longest lengths possible up to a maximum of ten (10') feet to minimize joints, except where required specifically otherwise and where consideration of control of expansion and contraction require otherwise.
- E. Sheet metal shall be formed to true lines and sharp arises. Work shall be installed straight, without bulges or waves and secured as specified/shown.

Face segment of copings, drip edges, gravel stops, etc. shall have a maximum length of eight (8") inches. Face segments in excess of eight (8") inches shall be installed with a stiffening rib or in multiple segments.

- F. Exposed edges shall be turned under (hemmed) for stiffness. Exposed, sheared, or raw edges shall NOT be permitted. Rounded, smooth corners are required where sheet metal may puncture or damage any adjacent material or is exposed. Provide drip edge on all vertical faces of sheet metal to shed water away from underlying materials.
- G. Corners of sheet metal shall be mitered, seamed, and riveted, and sealed. Legs shall not be less than two (2') feet or more than three (3') feet long. Form and fabricate corners, closures, terminations, and transitions in shop. Only minor trimming shall be allowed in the field.

Lap Seams - Reactive Metals. Metal segments shall be overlapped (1.5" min); overlaps shall be prepared, pre-tinned, riveted three (3") inches o.c. (staggered) and soldered or welded. Expansion joints shall be provided at intervals of twenty (20') feet maximum.

Lap Seam - Non-Reactive Metals. Metal segments shall be overlapped (2" min); overlaps shall be cleaned and sealed with approved sealant.

- H. Work shall have concealed fasteners wherever possible; fasteners shall be of sufficient frequency/stagger to obtain lay-flat of metal flanges. All flanges to be secured, set in continuous bed of approved mastic/sealant. Cleats or other securement devices shall allow movement of metal work.

- I. Concealed joint plate shall be same thickness as sections to be joined. Seal both sides of joint plate under sections with continuous bead of sealant. After placement of sections, seal both sides on top of joint plate at ends of sections.
- J. Sheet metal shall be fabricated/installed such that closures, terminations, transitions to sheet metal and other surfaces are neat, permanent, and functional.
 - 1. Sheet metal shall be watertight without sealant at closures, terminations, and transitions.
 - 2. Sealant only and/or sealant as the primary source of watertight integrity at closures, terminations, and transitions is not acceptable.

3.03 PRE-APPLICATION TESTING / MOCK-UP CONSTRUCTION

- A. Construct mock-ups per Section 076200, Item 1.05 C; schedule inspections once shop drawings have been reviewed and returned with notations “approved” or “approved as noted”.
- B. General construction shall not commence unless mock-up construction has been approved following inspection by Waterproofing Consultant/Material Manufacturer.

3.04 NEW METAL COUNTER FLASHING

- A. Through-Wall Flashing
 - 1. New metal counter flashing shall be fabricated from approved noble metal as indicated on enclosed Drawings.
 - 2. Position new metal counter flashing a minimum of ten (10") inches above the plane of the new roof, or as indicated on enclosed Drawings. Contour new counter flashing to elevation changes; fill in corners to obtain full protection. Restore and prepare substrate, including cementitious parging, to provide continuous and even support at all contact planes.
 - 3. Form suitable water dams at end, interior terminations and interior corner connections. Form water dams of same metal as counter flashing and/or approved concealed flashing membrane.
 - 4. New metal counter flashing shall provide a face section with a dimension of not less than 2-1/2" as shown on enclosed Drawings or as defined by site mock-ups. Position new metal counter flashing to allow for installation of base flashing and counter flashing extender without damage or distortion.
 - 5. Extend new metal counter flashing a minimum of eight (8") inches past the termination of roof base flashing; install closure/termination metal flashing.
 - 6. Remove existing masonry, as required for the installation of new metal counter flashing, in a manner that precludes instability of adjacent and remaining masonry. Continuously shore masonry.
- B. Reglet-Mounted Metal Counter Flashing
 - 1. New metal counter flashing shall be constructed per Drawings.

2. New metal counter flashing shall be constructed from noble metal or as shown on Drawings, with connections overlapped two (2) inches and sealed with approved elastomeric sealant. Prefabricate corners (interior/exterior) with two (2') feet minimum legs each side.

3. New metal counter flashing shall provide a horizontal dimension of not less than 2-1/2" with integrated, continuous return-hemmed end dam, and vertical (face) dimension of not less than 2-1/2" and/or as shown on Drawings.

Position new metal counter flashing to allow for installation of base flashing without damage or distortion. Construct termination/closure flashing per enclosed details.

4. Reglet recess shall provide continuous and even support for metal counter flashing, securement elements and elastomeric sealants. Securement elements shall not interfere with placement of elastomeric sealants.

5. New metal counter flashing shall contour to elevation changes; fill in corners to obtain full protection.

C. Surface-Mounted Metal Counter Flashing

1. New metal counter flashing shall be constructed of approved metal per enclosed Drawings, with connections overlapped two (2) inches and sealed with approved elastomeric sealant. Prefabricate corners (interior/exterior) with two (2') feet minimum legs each side.

2. Mechanically secure new metal counter flashing with approved anchors through elongated holes.

3. Seal top of new metal counter flashing with approved elastomeric sealant.

3.05 SEALING

A. Construct all joints between sheet metal work and adjacent work to maintain resilient, watertight condition.

3.06 CORROSION PROTECTION

A. Prepare steel/metal in accordance with the requirements of the Material Manufacturer and approved mockup. Preparation shall remove all corrosion; as a minimum cleaning shall comply with the requirements of SSPC-SP3.

B. Preparation shall be conducted using power hand tools recommended by the Material Manufacturer for this task. Final clean prepared metal by wiping with an approved solvent or other agent approved by the Material Manufacturer. Allow all solvents to flash-off completely prior to application of the corrosion protection.

C. Corrosion protection shall consist of primer and topcoat; apply in dry-film-thickness (dft) in accordance with Part 2 of this section. Primer and topcoat shall have contrasting color.

3.07 DRAINS

A. New roof drain components shall comply with requirements of Part 2 of this Section.

- B. Existing roof drains shall be inspected for damage or deterioration. Replace damaged/deteriorated components.
- C. Roof drains shall be set/reset to assure continuous water discharge following installation of new roofing.
- D. Protect interior space during setting of drain body and related leader work.
- E. Test all drains and drain connections for proper flow and water tightness. Correct any and all defects.
- F. All drain and drain leader work shall be performed by skilled and licensed trades only.

3.08 CLEANING

After completion of installation of work of this Section, exposed work shall be cleaned thoroughly of all scraps, stains, and other materials which would damage work.

3.09 WORKMANSHIP

- A. Work of this Section shall provide leak-free protection for the roof system and interior of the structure.
- B. Work of this Section which does not conform to specified requirements shall be corrected and/or replaced as directed by Owner or his designated Representative at Contractor's expense without extension of time. Contractor shall also be responsible for cost of corrections to any work affected by or resulting from correction to work of this Section.

END OF SECTION

SECTION 077236 – AUTOMATIC SMOKE VENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Work Included: Provide factory-fabricated double-leaf automatic smoke vents

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data.
- B. Shop Drawings: Submit shop drawings including profiles, accessories, location, fusible links, adjacent construction interface, and dimensions.
- C. Warranty: Submit executed copy of manufacturer's standard warranty

1.3 QUALITY ASSURANCE

- A. Manufacturer: A minimum of 5 years experience manufacturing similar products.
- B. Installer: A minimum of 2 years experience installing similar products.
- C. Manufacturer's Quality System: Registered to ISO 9001 Quality Standards including in-house engineering for product design activities.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

1.5 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: Type S-SV Automatic Roof Fire Vent 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.

2.2 AUTOMATIC ROOF FIRE VENT

- A. Furnish and install where indicated on plans: (10) metal fire hopper vent Type S-SV , size [width (3'-0") x length (4'-0")]. Length denotes hinge side. The roof fire vent shall be single leaf. The roof fire vent shall be preassembled from the manufacturer.
1. Contractor to field verify the existing clear opening prior to ordering the automatic roof fire vents.
- B. Performance characteristics:
1. Vent(s) shall be UL listed.
 2. Covers shall be reinforced to support a minimum live load of 40 psf (195 kg/m²) with a maximum deflection of 1/150th of the span or 90 psf (439 kg/m²) wind uplift.
 3. Corrosion resistant gas springs shall open the vent covers simultaneously when latch is manually released or when heat breaks the UL listed fusible link. Opening shall be in a controlled manner to avoid damage to surrounding roof surfaces.
 4. Entire roof fire vent shall be weathertight with fully welded corner joints on cover and curb.
 5. Latch mechanisms shall hold the covers in the closed position without overstressing the fusible link and withstand 90 psf (439 kg/m²) wind uplift forces acting on the cover.
 6. Latch operation: When heat parts the UL listed fusible link, the latch shall release instantaneously, allowing vent covers to open. The latch shall be designed for easy resetting, after a fire or test, so that the covers cannot be latched closed unless the mechanism has been reset properly. Manufacturer shall provide instructions for resetting the latch with each unit.
 7. ISO 140-18 Rainfall Sound Rating – 37.5 db.
- C. Cover: Shall be [select: 14 gauge (1.9mm) galvanized steel or 11 gauge (2.3mm) aluminum] with a 3" (76mm) beaded flange with formed reinforcing members.
- D. Gasket: Dual EPDM gaskets shall be permanently adhered to the underside of the covers.
- E. Cover insulation: Shall be mineral wool of 4" (102mm) in thickness, fully covered and protected by a 12-gauge (2.75mm) paint bond G-90 galvanized steel liner.

- F. Curb: Shall be 12" (305mm) in height and of 10-gauge (3.5mm) paint bond G-90 galvanized steel with a fixed center channel. Curb shall be formed with a 6-7/8" (175mm) flange with 7/16" (11mm) holes provided for securing to roof deck. Curb shall be equipped with integral metal capflashing of 14-gauge (1.9mm) paint bond G-90 galvanized steel and feature the Bil-Clip® flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold single-ply roofing membrane securely in place.
- G. Curb insulation: Shall be 4" (102mm) mineral wool insulation, fully enclosed by a 10-gauge (3.5mm) paint bond G-90 galvanized steel liner.
- H. Lifting mechanisms: Corrosion resistant gas springs open covers automatically against a 10 lb/ft² (49Kg/m²) snow/wind load. Gas springs shall have built in dampers to assure a controlled rate of opening and automatically lock the covers in the full open position. A release mechanism shall be provided to allow the covers to be closed.
- I. Latch mechanism: Shall be the BILCO Thermolatch® II positive hold/release mechanism with a separate latching point for each cover controlled by a single UL listed 165°F (74°C) fusible link. Fusible link shall be curb mounted on a non-hinged end to allow the latching mechanism to be easily reset from the roof level.
- J. Hardware: Corrosion resistant gas springs and hot dip galvanized steel stop cables. All other hardware is zinc plated/chromate sealed.
 - 1. Heavy pintle hinges shall be provided.
 - 2. Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 1" (25mm) diameter red vinyl grip handle to permit easy release for closing.
 - 3. All hardware shall be zinc plated and chromate sealed.
 - 4. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.
 - 5. Heavy duty shock absorbers: Shall be provided to assure controlled opening of the covers
- K. Finish: Factory finish shall be factory standard alkyd base red oxide primer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.
 - 1. Test units for proper function and adjust until proper operation is achieved.

2. Test fusible link and install replacement fusible link after testing.
3. Repair finishes damaged during installation.
4. Restore finishes so no evidence remains of corrective work.

3.3 ADJUSTING AND CLEANING

- A. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

END OF SECTION 077236

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Penetration firestopping systems.
2. Penetrations in fire-resistance-rated walls.
3. Penetrations in horizontal assemblies.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for non-fire-resistance-rated joint sealants.

1.2 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- ##### A. Product Data: For each type of product.

- ##### B. Unlisted Firestopping Systems: Obtain an Engineering Judgment (EJ) from firestopping manufacturer where no UL, FM Approvals, or other listed assembly is available for particular firestop configuration. Follow International Firestop Council (IFC) recommended guidelines for evaluating firestopping systems in EJs.

- ##### C. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly developed in accordance with current International Firestop Council (IFC) guidelines. Obtain approval of authorities having jurisdiction prior to submittal.

1.4 INFORMATIONAL SUBMITTALS

- ##### A. Qualification Data: For Installer.

- B. Listed System Designs: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Entity that has been approved by FM Approvals in accordance with FM Approvals 4991 or been evaluated by UL and found to comply with UL's "UL Solutions Qualified Firestop Contractor Program."
- B. Manufacturer Qualifications: Entity that has received UL's "Firestop Movement Certification," which demonstrates that manufacturer's firestopping products designated with M-Ratings are based on exposure to cyclic movement and UL 1479 fire test evaluation when tested in accordance with ASTM E3037.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping systems when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping system materials in accordance with manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be accessed and installed in accordance with specified firestopping system design.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain penetration firestopping systems for each type of opening indicated from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. A qualified testing agency, acceptable to authorities having jurisdiction, will perform penetration firestopping system tests.
2. Test in accordance with testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:
 - a. Penetration firestopping systems installed with products bearing the classification marking of a qualified testing agency.
 - 1) UL in its online directory "Product iQ."
 - 2) Intertek Group in its "Directory of Building Products."
 - 3) FM Approvals in its "Approval Guide."

B. Provide components for each penetration firestopping system that, upon curing, do not re-emulsify, dissolve, leach, break down, or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water, or other forms of moisture characteristic during and after construction.

C. Provide components for each penetration firestopping system that do not contain ethylene glycol.

D. Provide components for each penetration firestopping system that are sufficiently flexible to accommodate movement, such as pipe vibration, water hammer, thermal expansion, and other normal building movement without damage.

E. Provide components for each penetration firestopping system that are appropriately tested for the thickness and type of insulation utilized.

2.3 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems must be compatible with one another, with the substrates forming openings, and with penetrating items if any.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. 3M; Fire Protection Products Division.
 - b. Hilti, Inc.
 - c. Nelson Firestop Products.
 - d. RectorSeal Corporation (The).
 - e. Specified Technologies, Inc.
 - f. USG Corporation.
 - g. Tremco Commercial Sealants and Waterproofing.

- B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined in accordance with ASTM E814 or UL 1479.
 - 1. F-Rating: Not less than the fire-resistance rating of the wall penetrated.
 - 2. Membrane Penetrations: Install recessed fixtures such that the required fire resistance will not be reduced.
- C. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined in accordance with ASTM E814 or UL 1479.
 - 1. F-Rating: At least one hour, but not less than the fire-resistance rating of the floor penetrated.
- D. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined in accordance with UL 1479.
 - 1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening and no more than 50-cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.
- E. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested in accordance with ASTM E84 or UL 723.

2.4 ACCESSORIES

- A. Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated, including but not limited to:
 - 1. Permanent forming/damming/backing materials.
 - 2. Substrate primers.
 - 3. Collars.
 - 4. Steel sleeves.

2.5 FILL MATERIALS

- A. Cast-in-Place Firestopping Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- C. Firestopping Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.

- E. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric strips for use around combustible penetrants.
- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Compressible, removable, and reusable intumescent pillows encased in fire-retardant polyester or glass-fiber cloth. Where exposed, and when required by a listed system, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed or dislodged.
- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.
- K. Thermal and Endothermic Wraps: Flexible, insulating, and fire-resistant protective wraps tested and listed for up to 2-hour fire ratings in accordance with ASTM E814 or UL 1479; for protecting membrane penetrations of utility boxes, critical electrical circuits, communications lines, and fuel lines, and for thermal barrier and circuit integrity protection in accordance with ASTM E1725 or UL 1724.
- L. Fire-Rated Cable Sleeve Kits: Complete kits designed for new or existing cable penetrations through walls which accept standard accessories.
- M. Fire-Rated Cable Pathways: Single or gangable device modules composed of a steel raceway with integral intumescent material and requiring no additional action in the form of plugs, twisting closure, putty, pillows, sealant, or otherwise to achieve fire and air-leakage ratings.
 - 1. Fire-rated cable pathway devices are the preferred product for data, video, and communications cable penetrations. Install these devices in locations where frequent cable moves, add-ons, and changes will occur. Such devices must be:
 - a. Capable of retrofit around existing cables.
 - b. Designed so that two or more devices can be ganged together.
 - c. Maintenance-free so no action is required to activate the smoke- and fire-sealing mechanism.
 - 2. Where fire-rated cable pathway devices are not practical, openings within walls and floors designed to accommodate data, video, and communications cabling must be provided with re-enterable products specifically designed for retrofit, such as retrofit devices for cable bundles, firestopping putty, plugs, or pillows.
- N. Retrofit Device for Cable Bundles: Factory-made, intumescent, collar-like device for firestopping existing over-filled cable sleeves and capable of being installed around projecting sleeves and cable bundles.

- O. Wall-Opening Protective Materials: Intumescent, non-curing putty pads or self-adhesive inserts for protection of electrical switch and receptacle boxes.
- P. Fire-Rated HVAC Retaining Angles: Steel angle system with integral intumescent firestopping gasket for use around rectangular steel HVAC ducts without fire dampers.
- Q. Firestopping Plugs: Flexible, re-enterable, intumescent, foam-rubber plug for use in blank round openings and cable sleeves.
- R. Fire-Rated Cable Grommet: Molded two-piece grommet made of plenum-grade polymer and foam inner core for sealing small cable penetrations in gypsum walls up to 1/2 inch in diameter.
- S. Closet Flange Gasket: Molded, single-component, flexible, intumescent gasket for use beneath a water closet (toilet) flange in floor applications.

2.6 MIXING

- A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings in accordance with manufacturer's written instructions and with the following requirements:
 - 1. Remove foreign materials from substrate surfaces that could interfere with adhesion of penetration firestopping materials.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.

- B. Prime substrates in accordance with penetration firestopping system manufacturer's written installation instructions, using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

- A. General: Install penetration firestopping systems in accordance with manufacturer's written installation instructions and published drawings for products and applications.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.
- C. Install fill materials by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items to achieve required fire-resistance ratings.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
 - 1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 ft. from end of wall and at intervals not exceeding 30 ft..
- B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 - 1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Manufacturer's name.

6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Owner will engage a qualified inspection agency to conduct and report on inspections in accordance with ASTM E2174.
- B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.
- C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Polyether joint sealants.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Participate in conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.

- C. Preconstruction Laboratory Test Schedule: Include the following information for each joint sealant and substrate material to be tested:
 - 1. Joint-sealant location and designation.
 - 2. Manufacturer and product name.
 - 3. Type of substrate material.
 - 4. Proposed test.
 - 5. Number of samples required.
- D. Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.
- E. Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.
- F. Field-Adhesion-Test Reports: For each sealant application tested.
- G. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- B. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
- C. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.

3. Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with substrates.
 4. Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
 5. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 6. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers.
 7. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 2. Conduct field tests for each kind of sealant and joint substrate.
 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.8 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.9 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 - 1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 - 2. Disintegration of joint substrates from causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.
 - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 POLYETHER JOINT SEALANTS

- A. Polyether, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, polyether joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide ChemLink DuraLink Elastomeric Joint Sealant.
- B. Polyether, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, polyether joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ChemLink NovaLink Elastomeric Joint Sealant.

2.3 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
 - 4. Provide flush joint profile at locations indicated on Drawings according to Figure 8B in ASTM C 1193.
 - 5. Provide recessed joint configuration of recess depth and at locations indicated on Drawings according to Figure 8C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
 - b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - 3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.
 - b. Whether sealant dimensions and configurations comply with specified requirements.

- c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
 4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
 5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in vertical nontraffic surfaces.
 1. Joint Locations:
 - a. Perimeter joints at frames of doors and storefront systems.
 - b. Other joints as indicated on Drawings.
 2. Joint Sealant: Polyether, S, NS, 50, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints at sheet metal flashing and accessories.

1. Joint Locations
 - a. Where indicated in Section 076200 “Metal Flashing & Trim”
 - b. Other joints as indicated on drawings.
2. Joint Sealant: Polyether, S, NS, 25, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 099600 - HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of high-performance coating systems on the following substrates:
 - 1. Exterior Substrates:
 - a. Steel.
 - b. Galvanized metal.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product indicated.

1.4 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. Coatings: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each coating system indicated to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each coating system.
 - a. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.
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.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Do not apply exterior coatings in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by Tnemec Inc., or approved equal.
- B. Products: Subject to compliance with requirements, provide product listed in the Exterior High-Performance Coating Schedule or Interior High-Performance Coating Schedule for the coating category indicated.

2.2 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility:
 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
 3. Products shall be of same manufacturer for each coat in a coating system.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Coating Materials: Owner reserves the right to invoke the following procedure:
1. Owner will engage the services of a qualified testing agency to sample coating materials. Contractor will be notified in advance and may be present when samples are taken. If coating materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 2. Testing agency will perform tests for compliance with product requirements.
 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and coating systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.

- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 3 Power Tool Cleaning.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings.

3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for coating and substrate indicated.
 - 2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Coat backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
 - 1. Contractor shall touch up and restore coated surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage to work of other trades by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Uncoated Steel:
 - 1. Primer: Tnemec Series 135 Chembuild; 4.0 to 6.0 mils DFT.
 - 2. Finish Coat: Tnemec Series 1095 Endura-Shield; 2.0 to 5.0 mils.
 - 3. Color: As Selected by Architect
- B. Galvanized Metal:
 - 1. Primer: Tnemec Series 135 Chembuild; 4.0 to 6.0 mils DFT.
 - 2. Finish Coat: Tnemec Series 1095 Endura-Shield; 2.0 to 5.0 mils.
 - 3. Color: As Selected by Architect

END OF SECTION 099600

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Fire Rated Sleeves for cables.
4. Grout.
5. Common electrical installation requirements.
6. Utility company coordination requirements.

1.3 DEFINITIONS

- A. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- B. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- C. "Provide": Furnish and install, complete and ready for the intended use.

1.4 ACTION SUBMITTALS

- A. Product Data: For Fire Rated Sleeves for cables.

1.5 INFORMATION SUBMITTALS

- A. Coordination Drawings

1. Provide coordinated layout drawings (composite drawings), prior to commencing site work. Coordinate with trades on the site such as but not limited to HVAC, Plumbing, Electrical, Technologies, Roofing, Finishes, Fire Protection, and Fire detection.
2. Coordination drawings shall include information furnished by trades Coordinate installation and location of but not limited to the following elements and trades: HVAC,

- Plumbing, Fire Protection, Electrical, Technology Systems, Architectural, Structural, and Specialty Systems.
3. Coordinate with architectural system submittals (i.e. roofing, ceilings, finishes) and structural system submittals, including footings and foundation. Identify zone of influence from footings and ensure systems are not routed within the zone of influence.
 4. Provide and indicate required maintenance access to equipment and maintain the clearances per manufacturer's and applicable code requirements.
 5. Prepare Drawings in Revit Model as follows:
 - a. Utilize Revit Model release equal to design documents.
 - b. Drawings to be same sheet size and scale as Contract Drawings.
 - c. Indicate location, size and elevation above finished floor of equipment and distribution systems.
 - d. Incorporate Addenda items and change orders.
 6. Advise Architect in the event conflict occurs. Bear costs resulting from failure to properly coordinate installation or failure to advise Architect of conflict.
 7. Verify in field exact size, location, and clearances regarding existing material, equipment and apparatus, and advise Architect of discrepancies between that indicated on Drawings and that existing in field prior to installation related thereto.
 8. Submit final Coordination Drawings with changes as Record Drawings at completion of project.

1.6 COORDINATION

- A. Trade Coordination: Include physical characteristics, electrical characteristics, device layout plans, wiring diagrams, and connections as required per Division 26, Electrical Coordination Documents. For equipment with electrical connections, furnish copy of approved submittal for inclusion in Division 26, Electrical submittal.
- B. Location of electrical outlets and equipment:
 1. Location of electrical outlets and equipment shown on electrical drawings are diagrammatic. Unless indicated otherwise do not use electrical drawings to locate electrical outlets and equipment.
 2. Luminaires and outlets:
 - a. Wall mounted luminaires and outlets:
 - 1) Use architectural elevation and section drawings to determine location unless indicated otherwise.
 - 2) Where architectural elevation and section drawings do not indicate location of wall outlets then locate the outlet within 12 inches of location shown on electrical drawings considering field conditions.
 - 3) Coordinate location with consideration of owner provided equipment such as wall mounted televisions, white boards, furniture, cabinets and the like.
 - b.

3. Electrical equipment: Utilize approved manufacturer's shop drawing dimensions to determine location of equipment in space. Comply with NEC 110.26 access, working space and dedicated equipment space requirements. Maintain manufacturer requirements for maintenance access.
 - C. Shop Drawings: Provide coordinated shop drawings which include physical characteristics of all systems, device layout plans, and control wiring diagrams. Reference individual Division 26, Electrical specification sections for additional requirements for shop drawings outside of these requirements.
 - D. Electrical connections to equipment supplied by owner or other trades:
 1. Prior to procurement of electrical equipment and field work coordinate with shop drawings and/or manufacturer's installation instructions the actual electrical characteristics of the equipment to be connected.
 2. Notify engineer of significant deviations or conflicts between the shop drawings and/or the manufacturer's installation instructions and information in the contract documents.
 - E. Coordinate arrangement, mounting, and support of electrical equipment:
 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 3. To allow right of way for piping and conduit installed at required slope so connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
 - F. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."
 - G. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."
 - H. Coordinate and install wiring for appliances and systems furnished under other specification Divisions or furnished by the Owner. Install electrical wiring in accordance with manufacturer's instructions.
- 1.7 PERMITS AND FEES
- A. Owner will pay all charges and/or fees levied by the serving utility companies relative to this project.
 - B. Obtain and pay all fees for permits, licensing, and inspections applicable to work of Division 26

1.8 QUALITY ASSURANCE

- A. Regulatory Requirements: Install work and materials to conform with local, State and Federal codes, and other applicable laws and regulations.
- B. Drawings are intended to be diagrammatic and reflect the Basis of Design manufacturer's equipment. Drawings are not intended to show every item in its exact location, or details of equipment or proposed systems layout. Verify actual dimensions of systems (i.e. distribution equipment, duct banks, light fixtures, etc.) and equipment proposed to assure that systems and equipment will fit in available space. Contractor is responsible for design and construction costs incurred for equipment other than Basis of Design, including, but not limited to, architectural, structural, electrical, HVAC, fire sprinkler, and plumbing systems.
- C. Manufacturer's Instructions: Follow manufacturer's written instructions. If in conflict with Contract Documents, obtain clarification. Notify Engineer/Architect, in writing, before starting work.
- D. Items shown on Drawings are not necessarily included in Specifications or vice versa. Confirm requirements in all Contract Documents. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- E. Provide Qualified Personnel that are thoroughly knowledgeable of applicable codes related to electrical systems to perform the electrical work. Installations shall be performed by skilled electrical tradesmen fully aware of the latest techniques, practices, and standards of the industry. Refer to N.E.C. Article 100-Definitions, Qualified Person.
- F. Install electrical equipment and components in a neat and workmanlike manner in accordance with recognized practices and industry standards. Refer to N.E.C.110-12. Haphazard or poor installation practice will be cause for rejection of the work.

PART 2 - PRODUCTS

2.1 SUBSTITUTION LIMITATIONS FOR ELECTRICAL EQUIPMENT

- A. Substitution requests for electrical equipment will be entertained under the following conditions:
 - 1. Substitution requests may be submitted for consideration if accompanied by value analysis data indicating that substitution will comply with Project performance requirements while significantly increasing value for Owner throughout life of facility.
 - 2. Contractor is responsible for sequencing and scheduling power system studies and electrical equipment procurement. Insufficient lead time for electrical equipment delivery will not be considered a valid reason for substitution.

2.2 SLEEVES FOR RACEWAYS AND CABLES

- A. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral water stop, unless otherwise indicated.
- B. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.
- C. EMT: Electrical Metallic Tubing.
- D. PVC: Schedule 40 or 80.

2.3 FIRE RATED SLEEVES FOR CABLES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. 3M
 - 2. Hilti
 - 3. Specified Technologies, Inc (STI)
 - 4. Wiremold.
- B. Factory assembled rectangular steel pathway containing an intumescent insert material that adjusts automatically to cable addition or subtraction.
- C. Sleeve shall have an F Rating equal to or greater than the rating of the wall in which the sleeve is installed.
- D. Sleeve shall be UL listed and bear the UL Classification marking.
- E. Sleeve shall be tested in accordance with ASTM E814 (ANSI/UL1479).
- F. Provide square wall plate kits for single sleeve applications. Provide multi-gang wall/floor plate kits for ganged applications.
- G. Subject to compatibility with requirements and field conditions, i.e. sleeve size, wall thickness, etc., acceptable products include the following:
 - 1. 3M Fire Barrier Pass-Through Devices
 - 2. Hilti Speed Sleeves
 - 3. Specified Technologies Inc. EZ-Path Fire Rated Pathway (series 33).
 - 4. Wiremold Flamestopper FS4 Series

2.4 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 INSTALLATION OF ELECTRICAL WORK

- A. Unless more stringent requirements are specified in the Contract Documents or manufacturers' written instructions, comply with NFPA 70 and NECA NEIS 1 for installation of Work specified in Division 26. Consult Architect for resolution of conflicting requirements.
- B. Comply with NECA 1.
- C. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- D. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- E. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- F. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete, masonry and gypsum board walls, or fire-rated floor and wall assemblies.
- B. Sleeves are required where cables (not in raceway) penetrate walls or floors. Sleeves are not required where raceways penetrate walls, except where raceways penetrate exterior walls/foundations below grade.
- C. Concrete Slabs and Walls: Install sleeves during erection of slabs and walls.
- D. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

- F. Provide insulated bushings on EMT sleeves for cable not in conduit. Bushings shall be plenum rated where installed in a plenum.
- G. Extend sleeves installed in floors 4 inches above finished floor level unless noted otherwise.
- H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- I. Seal space outside of sleeves with grout for penetrations of concrete and masonry.
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."
- K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
- L. Fire Rated Sleeves for cables: Fabricate openings in wall or floor assemblies per manufacturer's recommendations.

3.3 SLEEVE APPLICATION

- A. Sleeves for cables not in conduit:
 - 1. Through Non-Rated Interior Walls: EMT sleeves.
 - 2. Through Non-Rated Floors: EMT sleeves.
 - 3. Through Fire Rated Interior Walls: Fire Rated Sleeves for cables.
 - 4. Through Fire Rated Floors: Fire Rated Sleeves for cables.
- B. Sleeves for conduits:
 - 1. Through Exterior Walls Below Grade: Refer to details on structural Drawings. Absent any such details provide cast iron pipe or PVC, Schedule 40 or 80, sleeve two trade sizes larger than the conduit.
- C. Sleeves for Cable Trays:
 - 1. Through Non-Rated Interior Walls: Rectangular galvanized sheet metal opening.
 - 2. Through Fire Rated Walls: Stop cable tray 6 inches maximum for each side of wall and provide multiple fire rated sleeves for cables with combined allowable area for cable equal to the capacity of the cable tray unless noted otherwise.

3.4 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 260500

SECTION 260503 – DEMOLITION OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Demolition and removal of selected portions of electrical systems, including special systems normally specified in Division 27 and 28.
 - 2. Salvage of existing items to be reused.
 - 3. Salvage of existing items to be delivered to the Owner.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Remove and salvage items noted as 'salvage', 'return to Owner' or similar manner on the Drawings.
- C. Remove and salvage items as requested by the Owner. Conduct a meeting with the Owner prior to commencing demolition to determine items that the Owner wishes to retain.

1.5 PRE-TESTING

- A. Prior to commencing work, perform testing of devices and systems to verify devices and systems to remain are in good working condition. Devices shall include wiring devices and lighting control devices.
- B. Prepare a type written report documenting any items found to be damaged or in a non-working condition. Submit report to the Owner and Architect prior to commencing work. All devices and systems shall be considered in good working conditions if a report is not submitted and acknowledged by the Owner prior to commencing work.
- C. Arrange a time to perform testing with the Owner with at least two weeks advanced notice.
- D. Provide tests as follows on existing feeders to remain and notify engineer of any abnormalities:
 - 1. Megger testing.
 - 2. Infrared scanning at terminations.
- E. Provide tests as follows on existing branch panels, switchboards, switchgear, and other electrical distribution equipment:
 - 1. Infrared scanning.
 - 2. Grounding/bonding continuity.
- F. Existing Branch Circuits that Remain: Trace and ring-out existing branch circuits. Update panel schedules and relabel outlets, disconnect switches, boxes, and the like with actual branch circuit designations. Include such information in record drawings.
- G. Where infrared scanning results indicate excessive heat, tighten the mechanical lugs and retest after 24 hours.
- H. Include testing reports for above in closeout documentation. Record measurements and actions taken.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 ELECTRICAL SYSTEMS DEMOLITION

- A. Remove items depicted or denoted for demolition on the Drawings. Unless noted otherwise, removal of the items shall include devices, boxes, cable, supporting elements, raceway, etc. associated with the item back to the panelboard or nearest j-box or device to remain.

- B. Drawings are intended to indicate the general scope of demolition work. Visit the Project site to verify existing conditions prior to bidding. Determine means and methods for performing work. Identify existing building finishes, ceiling types, access, and fire walls. Determine locations, routings, and distances as necessary. Coordinate with the Owner to gain access to the facility.
1. Wherever walls, ceilings, structures, or electric-powered equipment are indicated as being removed on the Drawings (including architectural demolition plans and mechanical demolition plans) remove associated electrical system components, equipment, devices, fixtures, raceways, and wiring. Remove, relocate, and extend existing installations, as necessary, to accommodate demolition work, new work, and to maintain the existing electrical installations that shall remain operational. Repair adjacent construction and finishes damaged during demolition and extension work. Patch openings to match existing surrounding finishes.
 2. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
 3. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories
- C. Verify that abandoned wiring and equipment serve only abandoned equipment or facilities. Extend conduit and wire to loads that remain in operation (i.e., facilities, luminaires, wiring devices, equipment, etc.). Extension of conduit and wire to equipment shall be compatible with the surrounding area.
1. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel and/or junction boxes where appropriate.
 2. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces. Remove all associated clamps, hangers, supports, etc. associated with raceway removal.
- D. Where existing conduits and/or cables, which remain in service, pass through areas to be renovated and where such conduits and/or cables interfere with new work, reroute these conduits and/or cables to avoid new construction. Provide necessary boxes, cables, splicing and fittings for the rerouting of the circuits. Field-verify to determine complete scope of work prior to bidding.
- E. Existing conduit may remain if all the following are true:
1. Conduit will be reused to feed items installed under this contract.
 2. Conduit does not interfere with other trades.
 3. Conduit was originally installed meeting specifications related to this project.
 4. Conduit will not be exposed in a finished area (unless noted otherwise).
- F. Provide plugs on boxes to remain where conduits have been removed.
- G. Conduits concealed in masonry walls or under concrete slabs may be cut back, sealed and abandoned.
- H. Provide blank cover-plates on all abandoned boxes to remain in existing masonry or stud walls. Plate color and material shall match wiring devices plates specified for the project. In the absence of such specification, match the color and material of existing wiring devices in the area.

- I. Maintain power to end-of-line or downstream devices to remain. Provide raceways, boxes, conductors and all other necessary materials as required to re-establish damaged or interrupted feeders and branch circuits. Intercept existing feeders or branch circuits at nearest accessible space or device and reconnect to original feeder or branch circuit source.
- J. Repair or replace ceilings, ceiling tiles, and ceiling-grids that are damaged by this contractor.
- K. Electrical installations that remain shall be concealed, unless otherwise indicated or unless located within unfinished utility-type spaces. Cut and patch existing walls and ceilings as required. Exposed conduits and raceways will be rejected, unless prior approval has been obtained. Confirm scope of work and specific requirements for all such work directly with the Owner and the Architect.
- L. Prior to drilling existing precast concrete walls, detect and locate existing structural members imbedded within the precast panels to ensure they are not damaged.

3.2 SPECIAL SYSTEMS DEMOLITION

- A. Remove items depicted or denoted for demolition on the Drawings. Unless noted otherwise, removal of the items shall include devices, boxes, cable, supporting elements, etc. associated with the item back to the control panel, terminal block, punch block, patch panel, or similar type of termination point.

3.3 REMOVED MATERIALS

- A. Existing wiring removed shall be regarded as scrap materials to be recycled by this contractor. Scrap value shall be determined by the contractor and accounted for in the contractor's bid.
 - 1. All other demolished electrical items (e.g., panels, luminaires, receptacles, switches, controllers, system devices, etc.) shall be regarded as the Owner's property. The Owner reserves the right to identify which items shall be salvaged—and, thus, carefully removed by this contractor and placed in storage on site as directed by the Owner. The contractor shall be responsible for the proper disposal of all demolished materials that the Owner does not want to salvage. Coordinate specific requirements directly with Owner.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 1. Ballasts in luminaires installed prior to 1980 shall be incinerated in EPA approved incinerator or disposed of in EPA certified containers and deposited in an EPA landfill certified for PCB disposal or recycled by permitted ballast recycler. Punctured or leaking ballasts must be disposed of according to Federal Regulations under the Toxic Substance Control Act. Provide to Owner and architect/engineer with a Certificate of Destruction to verify proper disposal.
 - 2. HID and fluorescent lamps, determined by the Toxicity Characteristic Leachate procedure (TCLP), to be hazardous waste shall be disposed of in a permitted hazardous waste disposal facility or by a permitted lamp recycler.

FIT - HAFT ROOF REPLACEMENT
FASHION INSTITUTE OF TECHNOLOGY
NEW YORK, NY

57-23140-01
FEBRUARY 28, 2025
ISSUE FOR BID – C1668

3.4 END OF SECTION 260503

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Copper building wire rated 600 V or less.
 - 2. **Metal-clad cable, Type MC, rated 600 V or less**
 - 3. Connectors, splices, and terminations rated 600 V and less.

- B. Related Requirements:

- 1. Section 260533 "Raceway and Boxes for Electrical Systems" for allowable applications of raceways and cable assemblies. Cable assemblies, such as Type MC cable, shall not be permitted unless noted otherwise.

1.3 DEFINITIONS

- A. PV: Photovoltaic.
- B. RoHS: Restriction of Hazardous Substances.
- C. VFC: Variable-frequency controller.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

A. Copper Building Wire

- 1.
2. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
3. Conductors: complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Conductor Insulation:

1. Type THHN and Type THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

D. Temperature Ratings: All conductors shall be rated 90-degree C minimum.

2.2 METAL-CLAD CABLE, TYPE MC

A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Comply with UL 1569.
3. RoHS compliant.

C. Circuits:

D. Single circuit and multi-circuit with color-coded conductors. Separate neutral conductors shall be included for each circuit originating from a unique overcurrent protection device.

E. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.

F. Ground Conductor: Insulated.

G. Conductor Insulation:

1. Type THHN/THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

H. Armor: Steel or Aluminum, interlocked.

I. Jacket: PVC applied over armor.

2.3 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- C. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
1. Lugs for attachment to telecommunications systems grounding busbars shall be two-hole with long barrels and irreversible crimp terminations.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders:
1. 100 amps and less: Copper stranded.
 2. Over 100 amps: Copper, stranded.
- B. Branch Circuits: Copper. Solid or stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exterior Feeders and branch circuits routed horizontally on roofs: Type XHHW-2, single conductors in raceway.
- B. Other Feeders and Branch Circuits: Type THHN-THWN, single conductors in raceway.
- C. Feeders connected from the load-side of VFDs to electric motors: Type XHHW-2 single conductors installed in a raceway or Type XHHW-2 MC cable where permitted.

- D. Conductors serving circuits downstream of a device with GFCI or GFP protection shall have XHHW-2 insulation.
- E. PV Circuits: Type PV for PV source circuits rated at 2000 V.
- F. Metal Clad Cable
 - 1. Uses permitted:
 - a. Branch circuits rated less than 50 amps
 - b. In areas that have accessible ceiling space
 - 2. Uses not permitted:
 - a. Feeders
 - b. Homeruns that are more than 50 feet of cable length from device to panel.
 - c. Areas where there is no access to the ceiling space
 - d. Areas that have no ceiling or exposed structure
 - e. Exposed
 - f. Wet or damp areas

3.3 CONDUCTOR SIZES

- A. Minimum Wire Size (Interior Work): No. 12 AWG, except No. 14 AWG shall be permitted for signal, pilot control circuits and fixture whips.
- B. Minimum Wire Size (Exterior Work): No 10 AWG.
- C. Use #10 AWG minimum conductor size in lieu of #12 AWG minimum for 20 ampere, 120 volt branch circuits where homeruns are longer than 75 feet. Increase in size as required for a maximum of 3 percent voltage drop from panel to load.
- D. Derate conductors based on quantity of current carrying conductors in each conduit. Refer to the NEC for derating factors.
- E. Derate conductors for high ambient temperatures. Refer to the NEC for derating factors.

3.4 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.5 260536 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.]
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.6 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor and identify as spare conductor.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.
- B. Section includes grounding and bonding systems and equipment, plus the following special applications:
 - 1. Ground bonding common with lightning protection system.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 ELECTRICAL GROUNDING BUSBARS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Chatsworth.
 - 2. Cooper B-Line.
 - 3. Erico.
 - 4. Harger.

- B. Products shall be UL listed.
- C. Copper busbar, 0.25-inch thick minimum, insulated stand-offs, factory predrilled standard size holes.
- D. Electrical Grounding Busbars: Height shall be 4-inches minimum and length shall be 24-inches minimum unless indicated otherwise on Drawings.
- E. Connector Lugs: Lugs for connecting to grounding electrode conductors and bonding conductors shall be UL listed two-hole, long barrel, electro tinplated compression lugs.

2.3 CONDUCTORS

- A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B3.
 - 2. Stranded Conductors: ASTM B8.
 - 3. Tinned Conductors: ASTM B33.
 - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
 - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Bus-Bar Connectors: Compression type, copper or copper alloy, with two wire terminals.
- E. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.

- F. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- G. Cable Tray Ground Clamp: Mechanical type, zinc-plated malleable iron.
- H. Conduit Hubs: Mechanical type, terminal with threaded hub.
- I. Water Pipe Clamps:
 - 1. Mechanical type, two pieces with zinc-plated bolts.
 - a. Material: Tin-plated aluminum or Die-cast zinc alloy.
 - b. Listed for direct burial.
 - 2. U-bolt type with malleable-iron clamp and copper ground connector or copper ground connector rated for direct burial.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Grounding Conductors: Green-colored insulation with continuous yellow stripe.
- C. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus horizontally, on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
- D. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Use exothermic-welded connectors for outdoor locations.
- C. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.
- D. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 - 2. Make connections with clean, bare metal at points of contact.
 - 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 - 4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 - 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
 - 3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

- b. Perform tests by fall-of-potential method according to IEEE 81.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Report measured ground resistances.
- F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Steel slotted support systems.
2. Conduit and cable support devices.
3. Support for conductors in vertical conduit.
4. Structural steel for fabricated supports and restraints.
5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
6. Fabricated metal equipment support assemblies.

1.3 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 1. Suspended ceiling components.
 2. Ductwork, piping, fittings, and supports.
 3. Structural members to which hangers and supports will be attached.
 4. Size and location of initial access modules for acoustical tile.
 5. Items penetrating finished ceiling, including the following:
 - a. Luminaires.
 - b. Air outlets and inlets.
 - c. Sprinklers.
 - d. Access panels.

PART 2 - PRODUCTS016000

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch-diameter holes at a maximum of 8 inches o.c. in at least one surface.
 - 1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
 - 2. Material for Channel, Fittings, and Accessories: Galvanized steel.
 - 3. Channel Width: Selected for applicable load criteria.
 - 4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
- B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A36/A36M steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - 2. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
 - 3. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
 - 4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM F3125/F3125M, Grade A325.
 - 5. Toggle Bolts: All-steel springhead type.
 - 6. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:
 - 1. NECA 1.
 - 2. NECA 101
- B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.
- C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- F. Damp or wet locations: Utilize hot dipped galvanized steel slotted support systems. Apply galvanizing-repair paint to comply with ASTM A780 on cut edges.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT IMC and RMC may be supported by openings through structure members, according to NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.

3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
 6. To Light Steel: Sheet metal screws.
 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Anchor equipment to concrete base as follows:
 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

- A. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Metal conduits and fittings.
 - 2. Nonmetallic conduits and fittings.
 - 3. Boxes, enclosures, and cabinets.

- B. Related Requirements:

- 1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.
 - 2. Section 260519 "Low-Voltage Power Conductors and Cables" for cable assemblies such as metal clad cable.

1.3 DEFINITIONS

- A. Retain terms that remain after this Section has been edited for a project. GRC: Galvanized rigid steel conduit.
- B. IMC: Intermediate metal conduit.
- C. LFMC: Liquidtight flexible metal conduit.
- D. LFNC: Liquidtight flexible nonmetallic conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:
1. Structural members in paths of conduit groups with common supports.
 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Metal Conduit:
1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. GRC: Comply with ANSI C80.1 and UL 6.
 3. IMC: Comply with ANSI C80.6 and UL 1242.
 4. EMT: Comply with ANSI C80.3 and UL 797.
 5. FMC: Comply with UL 1; zinc-coated steel.
 6. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- B. Metal Fittings:
1. Comply with NEMA FB 1 and UL 514B.
 2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 3. Fittings, General: Listed and labeled for type of conduit, location, and use.
 4. Fittings for EMT:
 - a. Material: Steel.
 - b. Type: compression.
 5. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
- C. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 BOXES, ENCLOSURES, AND CABINETS

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- D. Steel Surface-Mount Boxes for Finished Spaces (only where specified): NEMA OS 1, cast bell-box style, no visible knockouts, no holes, no gaps, no sharp edges, smooth, size to match flush faceplate dimensions.
- E. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- H. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep.
- I. Gangable boxes are allowed.
- J. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 for indoor dry locations and Type 4 for wet and outdoor locations with continuous-hinge cover with flush latch unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

2.3 SLEEVE AND SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Advance Products & Systems, Inc.
 - 2. Calpico, Inc.
 - 3. Metraflex Co.
 - 4. Pipeline Seal and Insulator, Inc.
- C. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.
 - 1. Sealing Elements: EPDM (Ethylene-propylene-diene terpolymer rubber) or NBR (Acrylonitrile-butadiene rubber) interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 2. Pressure Plates: Plastic or carbon steel or stainless steel. Include two for each sealing element.

3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating or stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.
- D. Grout: Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 1. Above Grade Exposed Conduit: GRC or IMC.
 2. Concealed Conduit, Aboveground: GRC or IMC.
 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
 1. Exposed, Not Subject to Severe Physical Damage: EMT.
 2. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 4. Damp or Wet Locations: IMC.
 5. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 2. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.
 3. Use fittings as follows:
 - a. Outdoor and wet/damp areas: compression
 - b. Conduits larger than 1-inch trade size: compression
 4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

F.

3.2 INSTALLATION

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- C. Do not install raceways or electrical items on any rotating equipment.
- D. Do not fasten conduits onto the bottom side of a metal deck roof.
- E. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- F. Complete raceway installation before starting conductor installation.
- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines. The following are exceptions for concealing conduits:
 - 1. Where specifically noted or indicated on the drawings
 - 2. Electrical rooms with surface mounted panels
 - 3. Mechanical rooms
 - 4. In open ceilings with exposed structure
 - 5. Sound Booth
 - 6. Unfinished utility corridors with exposed ceiling structure.
- K. Do not install conduits exposed to solar heat gain such as roof tops unless indicated on the drawings.
- L. Support conduit within 12 inches of enclosures to which attached.
- M. Raceways Embedded in Slabs:

1. Conduit embedded in concrete slabs shall be positioned within the middle third of the slab and secured with approved supports. In no case shall the outside dimension of the conduit exceed $\frac{1}{3}$ the thickness of the slab. Conduits in slabs shall not be placed any closer than 3 conduit diameters on-center, and they shall not cross over each other.
 2. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement. Space raceways laterally to prevent voids in concrete.
 3. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
 4. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
 5. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.
- N. Stub-Ups to Above Recessed Ceilings:
1. Use EMT, IMC, or RMC for raceways.
 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- O. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- P. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- Q. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- R. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus $\frac{1}{4}$ turn more.
- S. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- T. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- U. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- V. Surface Raceways:
1. Install surface raceway with a minimum 2-inch radius control at bend points.
 2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface

raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

- W. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces, or from conditioned spaces to non-conditioned spaces or to exterior structures.
 2. Conduit extending from interior to exterior of building.
 3. Where otherwise required by NFPA 70.
- X. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations.
- Y. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- Z. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- AA. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- BB. Locate boxes so that cover or plate will not span different building finishes.
- CC. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- DD. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- EE. Set metal floor boxes level and flush with finished floor surface.
- FF. Existing Building Surfaces: In finished rooms where an existing wall or ceiling remains in place, cut and patch to match the surrounding finishes as required to conceal all raceways. Coordinate work directly with contractor responsible ceiling, walls, and partition finishes.
- GG. Conceal raceways within existing finished ceilings, walls, and partitions, unless otherwise indicated on the drawings or as follows:
1. Existing Hollow Walls (such as stud walls, hollow masonry walls, or other wall types with internal voids or vertical cavities):

- a. Outlet Boxes: If possible, use existing openings in wall, provided the opening is positioned within 24-inches of the location shown on plan for the new outlet. Otherwise, cut and patch wall as needed to install box flush.
 - b. Conduit: If possible, fish FMC (or MC cabling where permitted) down within the existing wall cavity. Otherwise, saw-cut and patch wall as needed to conceal conduit within the wall. Finish wall to match original.
 - c. This Contractor shall visit the facility to review existing conditions and determine means and methods of installation prior to bidding.
 - d. Where specifically identified on the drawings, use surface-mounted boxes and surface metal raceway or surface-mounted conduit painted to match the surrounding finishes.
 2. Existing Solid Walls (such as precast panels or filled masonry walls):
 - a. Use surface-mounted boxes and surface metal raceway or surface-mounted conduit painted to match the surrounding finishes.
 3. Existing Floors: Cut and patch existing floors as needed to accommodate new installations. Coordinate all such work with the general contractor prior to bidding.
- HH. Conduits below on grade structural slabs: provide support from structural slab for conduits to hold the conduits in place due to soil settlement under the slab. Refer to geotechnical report for anticipated soil settlement amount. Support shall be anchored or embedded in the structural slab and be of corrosion resistant material. Provide support spacing in compliance to NEC for PVC conduit.

3.3 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.4 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Color and legend requirements for raceways, conductors, and warning labels and signs.
2. Labels.
3. Bands and tubes.
4. Tapes and stencils.
5. Tags.
6. Signs.
7. Cable ties.
8. Paint for identification.
9. Fasteners for labels and signs.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.
- B. Identification Schedule: For each piece of electrical equipment and electrical system components to be an index of nomenclature for electrical equipment and system components used in identification signs and labels. Use same designations indicated on Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with NFPA 70.
- B. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- C. Comply with ANSI Z535.4 for safety signs and labels.

- D. Comply with NFPA 70E requirements for arc-flash warning labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 - 1. Black letters on an orange field.
 - 2. Legend: Indicate voltage and system or service type.
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded conductors.
 - 1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
 - 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral: White
 - 3. Color for Neutral: White.
 - 4. Color for Equipment Grounds: Green.
 - 5. Colors for Isolated Grounds: Green with two or more yellow stripes.
- C. Warning Label Colors:
 - 1. Identify system voltage with black letters on an orange background.
- D. Warning labels and signs shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."
- E. Equipment Identification Labels:
 - 1. Black letters on a white field.

2.3 LABELS

- A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.
- B. Snap-around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.
- C. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- thick, polyester or vinyl flexible label with acrylic pressure-sensitive adhesive.
 - 1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
 - 2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- D. Self-Adhesive Labels: Polyester or Vinyl, thermal, transfer-printed, 3-mil- thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
 - 1. Minimum Nominal Size:
 - a. 1-1/2 by 6 inches for raceway and conductors
 - b. 3-1/2 by 5 inches for equipment.
 - c. As required by authorities having jurisdiction.

2.4 BANDS AND TUBES

- A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches long, with diameters sized to suit diameters and that stay in place by gripping action.

2.5 TAPES AND STENCILS

- A. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils thick by 1 to 2 inches wide; compounded for outdoor use.
- B. Floor Marking Tape: 2-inch- wide, 5-mil pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.
- C. Stenciled Legend: In nonfading, waterproof, **[black]** <Insert color> ink or paint. Minimum letter height shall be 1 inch.

2.6 TAGS

- A. Nonmetallic Preprinted Tags: Polyethylene tags, 0.015 inch thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

2.7 SIGNS

- A. Laminated Acrylic or Melamine Plastic Signs:
 - 1. Engraved legend.
 - 2. Thickness:
 - a. For signs up to 20 sq. in., minimum 1/16 inch thick.
 - b. For signs larger than 20 sq. in., 1/8 inch thick.
 - c. Engraved legend with black letters on white face.
 - d. Self-adhesive.
 - e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.8 CABLE TIES

- A. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength at 73 Deg F according to ASTM D638: 12,000 psi.
 - 3. Temperature Range: Minus 40 to plus 185 deg F.
 - 4. Color: Black, except where used for color-coding.
- B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength at 73 Deg F according to ASTM D638: 12,000 psi.
 - 3. Temperature Range: Minus 40 to plus 185 deg F.
 - 4. Color: Black.
- C. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength at 73 Deg F according to ASTM D638: 7000 psi.
 - 3. UL 94 Flame Rating: 94V-0.
 - 4. Temperature Range: Minus 50 to plus 284 deg F.
 - 5. Color: Black.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
- H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- I. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.

- J. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. "EMERGENCY POWER."
 - 2. "POWER."
 - 3. PV POWER.
- K. Vinyl Wraparound Labels:
 - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
 - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- L. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- M. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- N. Self-Adhesive Labels:
 - 1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
- O. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.
- P. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.
- Q. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
 - 1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- R. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- S. Nonmetallic Preprinted Tags:
 - 1. Place in a location with high visibility and accessibility.
 - 2. Secure using general-purpose cable ties.
- T. Laminated Acrylic or Melamine Plastic Signs:

1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high sign; where two lines of text are required, use labels 2 inches high.

U. Cable Ties: General purpose, for attaching tags, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and [120] <Insert number> V to Ground: Identify with self-adhesive raceway labels or vinyl tape applied in bands.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
 2. Apply the following identification colors:
 - a. 208Y/120 Volt, Distribution System: White.
 - b. Fire Alarm System: Red.
 - c. Motor and Other Control Systems: Black.
 - d. Emergency 208Y/120 Volt Distribution System: White/Yellow.
 - e. Ground: Green.
- D. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use vinyl wraparound labels to identify the phase.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- E. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive labels with the conductor or cable designation, origin, and destination.
- F. Control-Circuit Conductor Termination Identification: For identification at terminations, provide self-adhesive labels with the conductor designation.

- G. Grounding Electrode Conductors and Grounding System Conductors: At each electrical room and communications room ground bus bar, label each raceway or conductor at the ground bus bar. Identify the destination of each grounding electrode conductor, bonding jumper and grounding system conductor. The labeling shall be by permanent adhesive label on the raceway. Conductors that terminate in the same room and the entire path is readily visible do not require labeling.
- H. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.
- I. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive labels.
 - 1. Apply to exterior of door, cover, or other access.
- J. Arc Flash Warning Labeling: Self-adhesive labels.
- K. Operating Instruction Signs: Self-adhesive labels.
- L. Emergency Operating Instruction Signs: Self-adhesive labels with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer.
- M. Equipment Identification Labels:
 - 1. Indoor Equipment: Self-adhesive label.
 - 2. Outdoor Equipment: Laminated acrylic or melamine sign.
 - 3. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a self-adhesive, engraved, laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Enclosed switches.
 - e. Enclosed circuit breakers.
 - f. Power-transfer equipment.
 - g. Contactors.
 - h. Remote-controlled switches, dimmer modules, and control devices.
 - i. Battery-inverter units.
 - j. Battery racks.
 - k. Power-generating units.
 - l. Monitoring and control equipment.

END OF SECTION 260553

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

- A. ATS: Acceptance testing specification.
- B. GFCI: Ground-fault circuit interrupter.
- C. GFEP: Ground-fault equipment protection.
- D. MCCB: Molded-case circuit breaker.
- E. SPD: Surge protective device.
- F. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of panelboard.
 - 1. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.
 - 2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details.
 - 2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
 - 3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.

4. Detail bus configuration, current, and voltage ratings.
5. Short-circuit current rating of panelboards and overcurrent protective devices.
6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
7. Include wiring diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Panelboard Schedules: For installation in panelboards Submit final version to match installed conditions and additional loads.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. Include the following:
 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Keys: Two spares for each type of panelboard cabinet lock.
 2. Circuit Breakers Including GFCI and GFEP Types: Two spares for each panelboard.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: ISO 9001 or ISO 9002 certified.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Handle and prepare panelboards for installation according to NEMA PB 1.

1.10 FIELD CONDITIONS

- A. Environmental Limitations:
 1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding 23 deg F (minus 5 deg C) to plus 104 deg F (plus 40 deg C).
 - b. Altitude: Not exceeding 6600 feet (2000 m).

1.11 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.
 1. Panelboard Warranty Period: 18 months from date of Substantial Completion.
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace SPD that fails in materials or workmanship within specified warranty period.
 1. SPD Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANELBOARDS COMMON REQUIREMENTS

- A. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Comply with NEMA PB 1.
- D. Comply with NFPA 70.
- E. Enclosures: Surface-mounted, dead-front cabinets.
 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 2. Height: 84 inches (2.13 m) maximum.
 3. Finishes:
 - a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - b. Back Boxes: Galvanized steel.

F. Incoming Mains:

1. Location: Convertible between top and bottom.
2. Main Breaker: Main lug interiors up to 400 amperes shall be field convertible to main breaker.

G. Phase, Neutral, and Ground Buses:

1. Material: Tin-plated aluminum.
 - a. Plating shall run entire length of bus.
 - b. Bus shall be fully rated the entire length.
2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
4. Full-Sized Neutral: Equipped with full-capacity bonding strap for service entrance applications. Mount electrically isolated from enclosure. Do not mount neutral bus in gutter.

H. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Terminations shall allow use of 75 deg C rated conductors without derating.
3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.

I. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.

1. Panelboards and overcurrent protective devices rated 240 V or less shall have short-circuit ratings as shown on Drawings, but not less than 10,000 A rms symmetrical.
2. Panelboards and overcurrent protective devices rated above 240 V and less than 600 V shall have short-circuit ratings as shown on Drawings, but not less than 14,000 A rms symmetrical.

2.2 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- B. Mains: Circuit breaker as indicated on plans.

- C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- D. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Provide Arc Energy Reducing Maintenance Switch on any breaker or fusible disconnect switch which can be adjusted 1,200 A or higher per NEC 240.87.
- B. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents. Circuit breaker types, frame sizes, and functionality shall be as required to meet the overcurrent device selectivity requirements, but not less than as noted below:
 - 1. Thermal-Magnetic Circuit Breakers:
 - a. Inverse time-current element for low-level overloads.
 - b. Instantaneous magnetic trip element for short circuits.
 - c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - 2. Subfeed Circuit Breakers: Vertically mounted.
 - 3. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Breaker handle indicates tripped status.
 - c. UL listed for reverse connection without restrictive line or load ratings.
 - d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.
 - f. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
 - g. Rating Plugs: Three-pole breakers with ampere ratings greater than 150 amperes shall have interchangeable rating plugs or electronic adjustable trip units.
 - h. Alarm Switch: Single-pole, normally open contact that actuates only when circuit breaker trips.
 - i. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function with other upstream or downstream devices.
 - j. Multipole units enclosed in a single housing with a single handle.

2.4 IDENTIFICATION

- A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.
- B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.

2.5 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.
- B. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.
- C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.
- D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Comply with NECA 1.
- C. Install panelboards and accessories according to NEMA PB 1.1.
- D. Equipment Mounting:
 - 1. Attach panelboard to the vertical finished or structural surface behind the panelboard.
- E. Mount top of trim 90 inches (2286 mm) above finished floor unless otherwise indicated.
- F. Mount panelboard cabinet plumb and rigid without distortion of box.
- G. Mount surface-mounted panelboards to steel slotted supports 1-1/4 inch (32 mm) in depth. Orient steel slotted supports vertically.
- H.

- I. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.
- J. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
- K. Install filler plates in unused spaces.
- L. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- E. Install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
- D.

1. Perform each visual and mechanical inspection and electrical test for low-voltage air circuit breakers stated in NETA ATS, Paragraph 7.6 Circuit Breakers. Do not perform optional tests. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

E. Panelboards will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

3.6 PROTECTION

- A. Temporary Heating: Prior to energizing panelboards, apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 262416

SECTION 263100 - PHOTOVOLTAIC COLLECTORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General Conditions and Supplemental General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. PV modules (laminates in mounting frames).
 - 2. Inverters.
 - 3. Rapid Shutdown Devices
 - 4. Balance of System Components
 - 5. Mounting structures.

1.3 DEFINITIONS

- A. ETFE: Ethylene tetrafluoroethylene.
- B. FEP: Fluorinated ethylene propylene.
- C. IP Code: Required ingress protection to comply with IEC 60529.
- D. MPPT: Maximum power point tracking.
- E. PTC: USA standard conditions for PV.
- F. PV: Photovoltaic.
- G. STC: Standard Test Conditions defined in IEC 61215.

1.4 QUALIFICATIONS

- A. All work to be performed by a licensed and bonded electrical contractor. Photovoltaic System Installer shall have held a valid New York State electrical contractor's license, under the current business name, for a period of not less than 5 years.
- B. PV Installer shall have a NABCEP certified installer on staff.

1.5 BIDDING REQUIREMENTS AND SUBMITTAL

- A. The photovoltaic system for this project shall account for Local Law 92 and Local Law 94 requirement of the roofs of certain buildings be partially covered with green roof or solar photovoltaic electricity generation in accordance with the New York City Building Code.
- B. The following information shall be provided to the general contractor at time of bid and will be used to review and select the winning bidder.
 - 1. Qualification information as required in section 1.4
 - 2. Proposed technologies with cut sheets. – Provide product data sheets for proposed solar modules, inverters, racking, data collector, and any other balance of system components.
 - 3. System Cost per Watt
 - 4. Total system size in kW, both DC and AC. – Provide system size in DC kW and AC kW for the proposed system.
 - 5. Simulation of annual performance using local weather data and proposed orientation and shading. – Provide simulated annual system production. Provide summary of data used in simulation such as shading information, total solar resource fraction (TSRF), and system de-rating parameters used.
 - 6. Example of roof attachment. – Provide a detail for the roof attachment for the proposed racking system.
 - 7. Partial or complete one-line diagram and plan view – Provide a basic one-line diagram showing proposed stringing and balance of system components (combines, disconnects, meters, etc). Provide a low level detail plan sheet(s) showing locations of equipment. This information is to purvey design intent only. Exact shop drawings to be provided during submittals.
 - 8. Warranty information – Provide information on product warranties and workmanship warranties
- C. If the PV design is to vary from what is shown in the documents (different technology, racking system, etc.) any re-engineering will be the responsibility of the PV Contractor and/or product manufacturer.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for PV panels.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Shop Drawings: For PV modules.
 - 1. Include plans, elevations, sections, and mounting 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. Detail fabrication and assembly.

4. Include diagrams for power, signal, and control wiring.

1.7 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Sample Warranty: For manufacturer's special materials and workmanship warranty and minimum power output warranty.

1.8 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For PV modules to include in operation and maintenance manuals.

1.9 WARRANTY

- A. Manufacturer's Special Materials and Workmanship Warranty: Manufacturer agrees to repair or replace components of PV modules that fail in materials or workmanship within specified warranty period.
 1. Manufacturer's materials and workmanship warranties include, but are not limited to, the following:
 - a. Faulty operation of PV modules.
 2. Warranty Period: Two years from date of Substantial Completion.
- B. Manufacturer's Special Minimum Power Output Warranty: Manufacturer agrees to repair or replace components of PV modules that fail to exhibit the minimum power output within specified warranty period. Special warranty, applying to modules only, applies to materials only, on a prorated basis, for period specified.
 1. Manufacturer's minimum power output warranties include, but are not limited to, the following warranty periods, from date of Substantial Completion:
 - a. Specified minimum power output to 80 percent or more, for a period of 25 years.

PART 2 - PRODUCTS

2.1 PHOTOVOLTAIC MODULES

- A. Manufacturers: Subject to compliance with requirements, provide products by the following or a prior approved equal:
 1. Canadian Solar.
 2. Hanwha Q Cells Co.

3. Hyundai Solar
4. JA Solar.

2.2 INVERTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following or a prior approved equal:
- 1.
 2. Chint
 3. Solectrica
 4. Solaredge
- B. Inverters shall be string inverters or micro inverters.

2.3 RAPID SHUTDOWN DEVICE

- A. Manufacturers: Subject to compliance with requirements, provide products by the following or a prior approved equal:
1. APS
 2. NEP
- B. Rapid shutdown devices shall reduce the PV dc circuit to 30V within 10 seconds.
- C. Electrical Safety Testing: UL1741

2.4 PERFORMANCE REQUIREMENTS

- A. NRTL (Nationally Recognized Testing Laboratory) Listing: Entire assembly shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for electrical and fire safety, Class A Class C, according to UL 1703.
- B. FM approved for NFPA 70, Class 1, Division 2, Group C and Group D hazardous locations.

2.5 SYSTEM DESCRIPTION

- A. Grid-Tied PV System:
1. Connected via a utility approved production meter to the electrical utility.
 2. The PV modules shall be installed on the rooftops. Attention should be paid in regards to setback distances from roof edges and guardrails.
 3. Inverters may be rooftop mounted.
 4. System shall include data collector to display system performance in a browser based format.
 5. System Components:

- a. PV modules.
- b. Inverter.
- c. Rapid Shutdown Equipment as required by NEC.
- d. Data collector
- e. Overcurrent protection/combiner box.
- f. Mounting structure.
- g. Roof patching. (By roofing contractor).
- h. Utility meter.
- i. AC Utility Disconnect.
- j. AC combiner panel
- k. AC Tie Breaker
- l. Associated conduit/raceways.

2.6 MANUFACTURED UNITS

A. Cell Materials: Polycrystalline or Monocrystalline.

1. c-Si.
2. Gallium arsenide (GaAs).

B. Module Construction:

1. Nominal Size: 32 inches wide by 64 inches long.
2. Weight: 42.8 lb.

C. Front Panel: 0.125-inch- thick glass.

D. Backing Material: 0.125-inch- thick glass;

E. Bypass Diode Protection: Internal.

F. Junction Box:

1. Size: 1.56 by 3.96 by 0.52 inch.
2. Fully potted, vandal resistant.
3. IP Code: IP65.
4. Flammability Test: UL 1703.

G. Output Cabling:

1. 0.158 inch
2. Quick, multiconnect, polarized connectors.
3. Two-Conductor Harness: No traditional return wire is needed from the end of a row back to the source combiner.

H. Series Fuse Rating: 25-30A.

2.7 CAPACITIES AND CHARACTERISTICS

A. Minimum Electrical Characteristics:

1. Maximum System Voltage: 1000VDC.
2. Rated Short-Circuit Current (I_{sc}): 20A Max.
3. Maximum Power at STC (P_{max}): 570-590W

B. Additional Electrical Characteristics:

1. Module Efficiency: 18 percent minimum.

2.8 MODULE FRAMING

A. PV laminates mounted in anodized extruded-aluminum frames.

1. Entire assembly UL listed for electrical and fire safety, Class A Class C, according to UL 1703, complying with IEC 61215.
2. Frame strength exceeding requirements of certifying agencies in subparagraph above.
3. Finish: Anodized aluminum.
 - a. Alloy and temper recommended by framing manufacturer for strength, corrosion resistance, and application of required finish.
 - b. Color: As indicated by manufacturer's designations.

2.9 ARRAY CONSTRUCTION

A. Framing:

1. Material: Extruded aluminum.
2. Maximum System Weight: Less than 4 lb/sq. ft..
3. Raceway Cover Plates: Aluminum.

2.10 INVERTER

A. Control Type: Maximum power point tracker control.

B. Inverter Electrical Characteristics:

1. Maximum Recommended PV Input Power: 25 kW.
2. Maximum Voc: 1000W.
3. Number of String Inputs: as needed.
4. Nominal Output Voltage: 208/120V ac.
5. Minimum CEC Weighted Efficiency: 97 percent.
6. NEMA 250 Enclosure Rating: NEMA 3R.

C. Operating Conditions:

1. Operating Ambient Temperatures: Minus 4 to plus 122 deg F.
2. Storage Temperature: Minus 40 to plus 122 deg F.
3. Relative Humidity: 0 to 95 percent, noncondensing.

D. Enclosure:

1. NEMA 250, Type 3R.
2. Enclosure Material: Galvanized steel or Steel.
3. Cooling Methods:
 - a. Fan convection cooling.
 - b. Passive cooling.
4. Protective Functions:
 - a. AC over/under voltage.
 - b. AC over/under frequency.
 - c. Ground over current.
 - d. Overtemperature.
 - e. AC and dc overcurrent.
 - f. DC over voltage.
5. Standard liquid crystal display, four lines, 20 characters, with user display and on/off toggle switch.
6. Weight: 260 lb.
7. Dimensions: 54 by 36 by 19 inches.

E. Disconnects:

1. AC disconnect.
2. DC disconnect.

F. Regulatory Approvals:

1. IEEE 1547.1.
2. IEEE 1547.3.
3. UL 1741.

2.11 SYSTEM OVERCURRENT PROTECTION

A. Combiner Box:

1. Fuses: 25-30A sized per modules.
2. Integral to inverter if string inverters are used.

2.12 BALANCE OF SYSTEM COMPONENTS

- A. AC Combiner Panelboard: Provide per specification section 262416.

- B. Interconnection Breaker: Provide compatible breaker at MDPA.
- C. Production meter Socket: Provide per utility standards
- D. AC utility Disconnect: Provide per utility standards.

2.13 MOUNTING STRUCTURES

- A. Flush Roof Mount: Extruded aluminum, two rails, tilt legs, and roof standoffs.

PART 3 - EXECUTION

3.1 COORDINATION

- A. PV contractor to coordinate with general contractor (GC) and electrical contractor (EC) for scheduling and installation.
- B. PV contractor shall coordinate with utility for approval of interconnection. Utility required components (AC Disconnect, Meter socket, CT cabinet if required) shall be provided by PV contractor unless coordinated with EC to provide. All roof patching and welding over mounting standoffs for the racking system shall be done by the roofing contractor to ensure roof maintains its warranty.
- C. Coordinate with Beaverton School District IT personnel for data connection to data collection unit.

3.2 EXAMINATION

- A. Examine substrate areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Do not begin installation until mounting surfaces have been properly prepared.
- C. If preparation of mounting surfaces is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. Examine modules and array frame before installation. Reject modules and arrays that are wet, moisture damaged, or mold damaged.
- E. Examine roofs, supports, and supporting structures for suitable conditions where PV system will be installed.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections.
- C. PV module will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 263100

SECTION 265100 - LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. LED exterior lighting.
 - 2. Luminaire accessories and support components.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. EPA: Effective projected area (as it relates to the wind force exerted on an object, in accordance with the standard, AASHTO LTS-5).
- D. Fixture: See "Luminaire."
- E. IP: International Protection or Ingress Protection Rating.
- F. LED: Light-emitting diode.
- G. Lumen: Measured delivered output of luminaire.
- H. Luminaire: Complete lighting unit, including light source, reflector, integral or remote driver, circuitry, lens, diffuser, housing, and accessories.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Arrange in order of luminaire designation.
 - 2. Include data on features, accessories, and finishes.
 - 3. Include physical description, profiles, and dimensions of luminaires.
 - 4. Include data on EPA, cable entrances, materials, dimensions, weight, rated design load, and ultimate strength of individual components.

5. Include life, output (lumens, CCT, and CRI), and energy-efficiency data.
6. Photometric data and adjustment factors based on laboratory tests, complying with IES LM-79 and IES LM-80.
7. Use same luminaire designations as indicated on Drawings.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.
- B. Warranty documents.

1.6 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications:
 1. Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. IESNA RP-16-05 Addendum "A": Industry-standard nomenclature and definitions of lighting terms and lighting technologies, including solid-state (LED) luminaires.
- C. UL Compliance: Comply with UL 1598 and listed for wet locations, as specified.
- D. Source Limitations:
 1. Provide luminaires from a single manufacturer for each luminaire type

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.8 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
 1. Structural failures, including luminaire support components.
 2. Faulty operation of luminaires and accessories.
 3. Deterioration or corrosion of metals, metal finishes, color retention, and other materials beyond normal weathering.
- B. Luminaire Warranty Period: Greater than four (4) years from date of Substantial Completion.

1. If the manufacturer's warranty commences upon the date materials are delivered, then the manufacturer's warranty period must be at least five (5) years to meet the requirement stated above.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.
- B. Exterior Temperature (Outdoor Lighting): minus 20 to plus 120 deg F (-29 to +50 deg C).
 1. Relative Humidity: Zero to 95 percent.
- C. Altitude: Sea level to 1000 feet.

2.2 LUMINAIRE REQUIREMENTS

- A. Luminaire Types and Acceptable Manufacturers: As indicated on the Drawings. Refer to the Luminaire Schedule.
 1. Model numbers shall not be regarded as complete or entirely accurate. Do not order products based solely on a model number. For each luminaire type, the contractor shall reconcile its description, including options and accessories, with its intended application derived from relevant information conveyed throughout the entirety of contract documents.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Factory-Applied Labels: Comply with UL 1598. Include CCT and CRI ratings. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.
- D. Recessed luminaires shall comply with NEMA LE 4.

2.3 LED LUMINAIRES

- A. Delivered lumen output as indicated on the Luminaire Schedule.
- B. IESNA LM-79 compliant, latest edition.
- C. IESNA LM-80 compliant, latest edition; 50,000 hours minimum, unless otherwise noted.
- D. CRI and CCT as indicated on Luminaire Schedule in accordance with ANSI C78.377.

- E. NEMA.SSL-1 compliant for operational characteristics and electrical safety of LED drivers and power supplies. ANSI/NEMA C82.77 compliant for maximum allowable harmonic distortion produced by power supplies/drivers.
- F. Power Factor > 0.9, unless noted otherwise.
- G. Total Harmonic Distortion (THD) < 20%, unless noted otherwise.

1)

2.4 MATERIALS

A. Metal Parts:

- 1. Free of burrs and sharp corners and edges.
- 2. Sheet metal components shall be steel unless otherwise indicated.
- 3. Form and support to prevent warping and sagging.

B. Steel:

- 1. ASTM A36/A36M for carbon structural steel.
- 2. ASTM A568/A568M for sheet steel.
- 3. Epoxy-coated.

C. Stainless Steel:

- 1. Manufacturer's standard grade.
- 2. Manufacturer's standard type, ASTM A240/240M.

D. Galvanized Steel: ASTM A653/A653M.

E. Aluminum: ASTM B209. Corrosion-resistant.

F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit servicing without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during servicing and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.

G. Acrylic Diffusers: 100 percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation (UV-stabilized). Lens Thickness: At least 0.125 inch minimum, unless otherwise indicated.

H. Glass Lenses, Diffusers, or Globes: Annealed crystal glass, tempered Fresnel glass, unless otherwise indicated. Acrylic lenses

2.5 FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Finishes and Color Selections: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping.
 - 1. Finishes/colors to be selected by the Architect/Engineer from the manufacturer's full range of standard finishes/colors during the review of action submittals, unless the color is specifically indicated on the Luminaire Schedule.
 - 2. If noted on the Luminaire Schedule, provide custom color matching Architect's color sample or RAL designation.

2.6 LUMINAIRE SUPPORT

- A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.
- C. Wires: ASTM A641/A641M, Class 3, soft temper, zinc-coated steel, 12-gage.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Examine walls, roofs, canopy ceilings, and overhang ceilings for suitable conditions where luminaires will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with NECA 1.

- B. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and Section 260533 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.
- C. Coordinate layout and installation of luminaires with other construction. Do not modify layout or locations of luminaires without documented approval to do so, unless indicated otherwise on the Drawings.
- D. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- E. Fasten luminaire to structural support.
- F. Supports:
 - 1. Sized and rated for luminaire weight.
 - 2. Able to maintain luminaire position after cleaning and servicing.
 - 3. Provide support for luminaire without causing deflection of ceiling or wall.
 - 4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.
- G. Wall-Mounted Luminaires:
 - 1. Attached to structural members in walls or a minimum 20-gauge or 1/8-inch thick backing plate attached to wall structural members.
 - 2. Attached using through bolts and backing plates on either side of wall as recommended by luminaire manufacturer.
 - 3. Do not attach luminaires directly to gypsum board.

3.3 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.
- B. Steel Conduits: Comply with Section 260533 "Raceways and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch-thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.4 FIELD QUALITY CONTROL

- A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.
- B. Perform the following tests and inspections:
 - 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 - 2. Verify settings, programming, functions, and operation of components integral to the luminaire, whether dimming drivers, integral presence sensors, or photoelectric sensors—
 - 3. Inspect luminaires for nicks, mars, dents, scratches, and other damage.

- C. Luminaire will be considered defective if it does not pass operation tests and inspections.
- D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.5 STARTUP AND SYSTEMS COMMISSIONING

- A. Comply with requirements for startup and system commissioning

3.6 ADJUSTING

- A. CLEANING

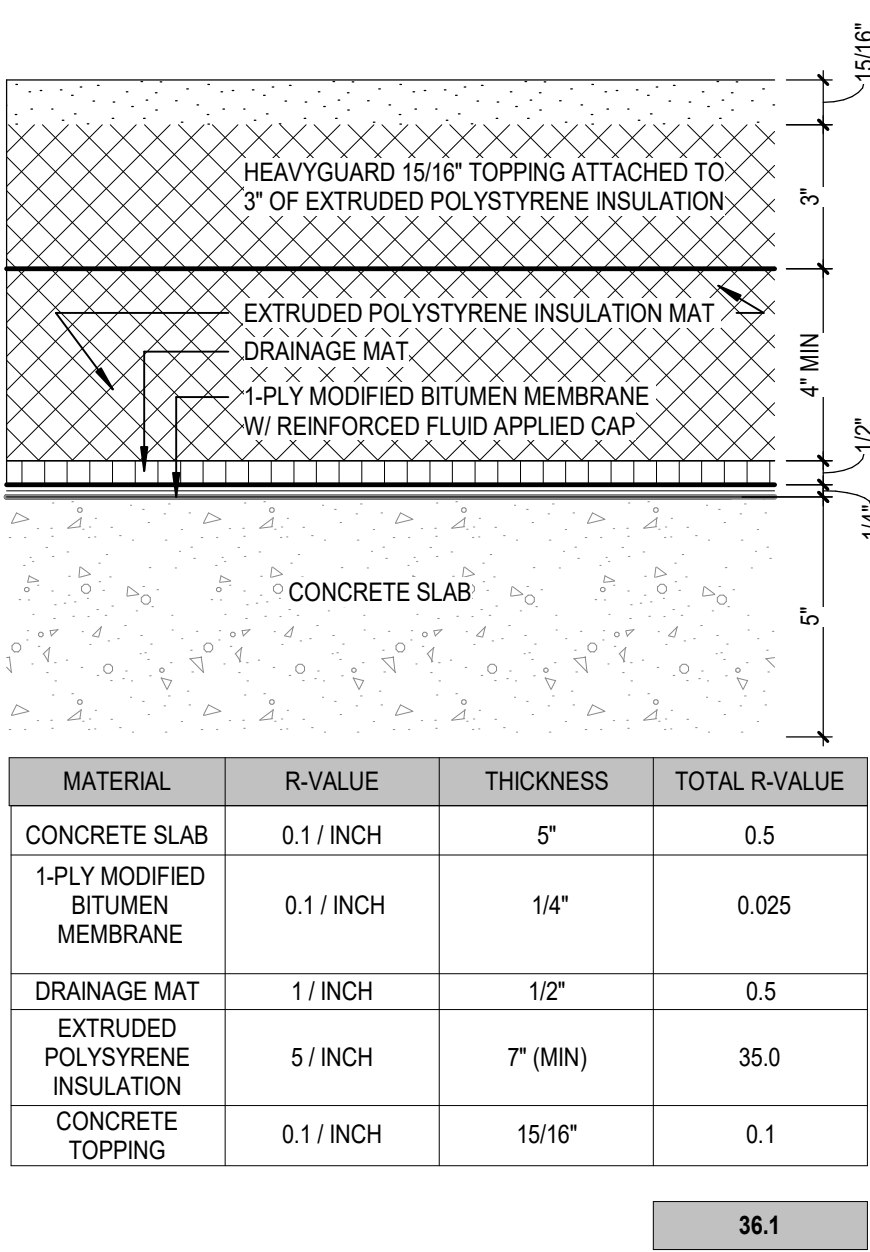
- 1. Thoroughly clean each installed luminaire within one month of substantial completion.

END OF SECTION 265100

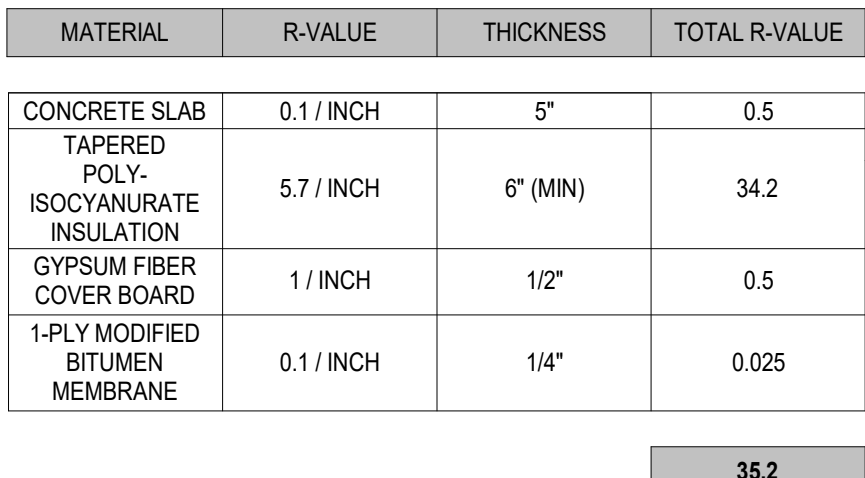
EXHIBIT D: DRAWINGS

Autodesk Docu575-25140-00-FT Haft Auditorium Phase 2 Renovations17-25140-01-FT Haft Roof AR_24.rvt
2/28/2025 4:14:55 PM

1 **IRMA ROOF**
CP105.00 SCALE: 3" = 1'-0"



2 **CONVENTIONAL ROOFING**
CP105.00 SCALE: 3" = 1'-0"



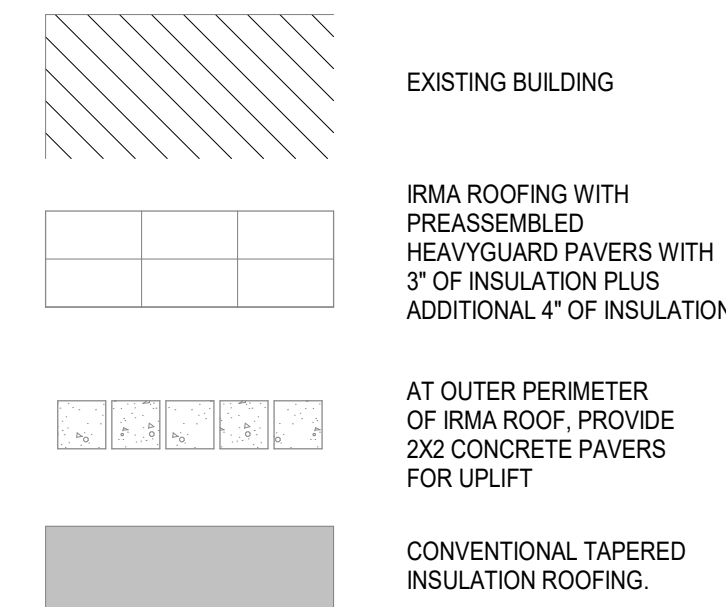
NYCECC 2020 TABULAR ANALYSIS

NYCECC CITATION	PROVISION	ITEM DESCRIPTION	CODE PRESCRIPTIVE VALUE	PROPOSED DESIGN VALUE	DOCUMENTATION
C401.2.2 C402.1.3 (TABLE) C402.1.3 (TABLE) C402.1.4 (TABLE) C402.1.4 (TABLE) C402.2.1	PRESCRIPTIVE COMPLIANCE PATH OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, R-VALUE METHOD OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, U-FACTOR METHOD OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS, U-FACTOR METHOD ROOF ASSEMBLY	APPLICABILITY INSULATION ENTIRELY ABOVE ROOF DECK WALLS, ABOVE GRADE, WALLS, BELOW GRADE, FLOORS, SLABS-ON-GRADE, OPAQUE DOORS INSULATION ENTIRELY ABOVE ROOF DECK WALLS, ABOVE GRADE, WALLS, BELOW GRADE, FLOORS, SLABS-ON-GRADE, OPAQUE DOORS THE MINIMUM THERMAL RESISTANCE (R-VALUE) OF THE INSULATING MATERIAL INSTALLED EITHER BETWEEN THE ROOF FRAMING OR CONTINUOUSLY ON THE ROOF ASSEMBLY SHALL BE AS SPECIFIED IN TABLE C402.1.3, BASED ON CONSTRUCTION MATERIALS USED IN THE ROOF ASSEMBLY. CONTINUOUS INSULATION BOARD SHALL BE INSTALLED IN NOT LESS THAN 2 LAYERS AND THE EDGE JOINTS BETWEEN EACH LAYER OF INSULATION SHALL BE STAGGERED.	THE REQUIREMENTS OF SECTIONS C402 THROUGH C405 AND C406. IN ADDITION, COMMERCIAL BUILDINGS SHALL COMPLY WITH SECTION C406 AND TENANT SPACES SHALL COMPLY WITH SECTION C406.1.1 CLIMATE ZONE 4 = R-C33g N/A, NO SCOPE CLIMATE ZONE 4 = U=0.030 N/A, NO SCOPE CLIMATE ZONE 4 = R-C33g	PRESCRIPTIVE COMPLIANCE PATH SEE IRMA & CONVENTIONAL ROOFING PRESCRIPTIVE CALCULATIONS #1 & #2 N/A SEE IRMA & CONVENTIONAL ROOFING PRESCRIPTIVE CALCULATIONS #1 & #2 N/A R-VALUE TABULATION FACTORS MINIMUM REQUIRED INSULATION	EN.001.00 EN.001.00 N/A EN.001.00 N/A EN.001.00
C402.3	ROOF SOLAR REFLECTANCE AND THERMAL EMITTANCE	LOW-SLOPED ROOFS DIRECTLY ABOVE COOLED CONDITIONED SPACES IN CLIMATE ZONES 1, 2, 3, & 4 SHALL COMPLY WITH ONE OR MORE OF THE OPTIONS IN TABLE C402.3	THREE-YEAR-AGED SOLAR REFLECTANCE INDEX OF 0.2 AS DETERMINED WITH ASTM C1549 OR ASTM E1918, OR 3-YEAR AGED THERMAL EMITTANCE OF 0.2 OR THREE-YEAR-AGED SOLAR REFLECTANCE INDEX OF 64.	N/A, CLIMATE ZONE 4	EN.001.00
C405.2.6	EXTERIOR LIGHTING CONTROLS.	EXTERIOR LIGHTING SYSTEMS SHALL BE PROVIDED WITH CONTROLS THAT COMPLY WITH SECTIONS C405.2.6.1 THROUGH C405.2.6.5	COMPLIES WITH C405.2.6.1. NO DECORATIVE LIGHTING, NO SETBACK, NOR TIME SWITCH REQUIRED.	SEE LIGHTING NOTE #1	EN.001.00
C405.2.6.1 C405.2(1) TABLE	DAYLIGHT SHUTOFF EXTERIOR LIGHTING ZONES	LIGHTS SHALL BE AUTOMATICALLY TURNED OFF WHEN DAYLIGHT IS PRESENT AND SATISFIES THE LIGHTING NEEDS. (1) DEVELOPED AREAS OF NATIONAL PARKS, STATE PARKS, FOREST LAND, AND RURAL AREAS, (2) AREAS PREDOMINANTLY CONSISTING OF RESIDENTIAL, ZONING, NEIGHBORHOOD BUSINESS DISTRICTS, LIGHT INDUSTRIAL WITH LIMITED NIGHTTIME USE AND RESIDENTIAL MIXED-USE AREAS (3) ALL OTHER AREAS NOT CLASSIFIED AS LIGHTING ZONE 1, 2 OR 4, (4) HIGH-ACTIVITY COMMERCIAL DISTRICTS IN MAJOR METROPOLITAN AREAS AS DESIGNATED BY THE LOCAL LAND USE PLANNING AUTHORITY.	COMPLIES WITH C405.2.6.1 ZONE 3 - ALL OTHER AREAS NOT CLASSIFIED AS LIGHTING ZONE 1, 2, OR 4	SEE LIGHTING NOTE #1 LIGHTING ZONE 3	EN.001.00 EN.001.00
C405.4(2) TABLE	LIGHTING POWER ALLOWANCES FOR BUILDING EXTERIORS	ZONE 3 WALKWAY AND RAMPS 10 FEET WIDE OR GREATER, PLAZA AREAS, SPECIAL FEATURE AREAS - 11W / SQ. FT.	11 W / SQ. FT. = 880 WATTS ALLOWED @ 8,000 SF	693.5 WATTS < 880 WATTS ALLOWED FOR 8,000 SF	EN.001.00

243 WEST 27TH STREET - BIN 1014251
NO CHANGE TO USE OR OCCUPANCY

WEST 27TH STREET

ARCHITECTURAL LEGEND



GENERAL NOTES

- GENERAL NOTES APPLY TO ALL SHEETS.
- WORK: ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AND INDICATED IN THE CONTRACTORS BID.
- THE PLANS INDICATE THE GENERAL ARRANGEMENT OF PIPES, CONDUIT, WIRING, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED DETAIL, FITTING AND EXISTING CONDITION. LOCATION OF THESE ITEMS MAY BE ADJUSTED CONDITIONAL UPON THE SATISFACTORY COMPLIANCE WITH ALL OTHER REQUIREMENTS.
- DO NOT SCALE DRAWINGS. DIMENSIONS NOTED PREVAIL. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.
- COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTORS THE SIZE AND LOCATION OF EQUIPMENT PADS, MECHANICAL CHASE SIZES, AND CUT-PUTS FOR EQUIPMENT.
- ARCHITECTURAL FINISH FLOOR ELEVATION ARE RELATIVE TO FIRST FLOOR ELEVATION (0'-0") UNLESS OTHERWISE NOTED.
- ALL PENETRATIONS THROUGH WALLS AND FLOORS SHALL BE SEALED WITH PENETRATION FIRE STOPPING MATERIAL AS REQUIRED TO ACHIEVE THE RESPECTIVE FIRE-RESISTANCE RATING AND SMOKE STOPPAGE.
- CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY. SEE DRAWING FOR QUANTITIES AND LOCATION OF WORK. SEE SPECIFICATIONS FOR QUALITIES AND CONDITIONS OF WORK.
- NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
- THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS ARE RESPONSIBLE FOR PROPER REMOVAL AND DISPOSAL OF ALL DEBRIS GENERATED DURING CONSTRUCTION. THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION DEBRIS SHALL BE IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. THE PREMISES SHALL BE KEPT CLEAN AND FREE FROM ALL WASTE MATERIALS.
- GENERAL CONTRACTOR SHALL PROTECT NEW CONSTRUCTION FROM DAMAGE BY ALL TRADES. ALL SUCH DAMAGE CAUSED BY THE CONTRACTOR DURING THE COURSE OF THIS WORK SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.

BUILDING DEPARTMENT NOTES

- THE FOLLOWING NOTES SHALL APPLY THROUGHOUT:
 - WORK SHALL BE EXECUTED IN FULL COMPLIANCE WITH THE APPLICABLE PROVISIONS OF ALL LAWS AND BY-LAWS BEARING ON THE PERFORMANCE AND EXECUTION OF THE WORK.
- ALL MATERIALS OR ASSEMBLIES REQUIRED TO HAVE A FIRE RESISTANCE RATING SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS:
 - THEY SHALL HAVE BEEN ACCEPTABLE PRIOR TO THE EFFECTIVE DATE OF THE CODE BY THE BOARD OF STANDARDS AND APPEALS (OR)
 - THEY SHALL HAVE BEEN ACCEPTED FOR THE USE UNDER THE PRESCRIBED TEST METHODS BY THE COMMISSIONER (OR)
- MATERIALS OR ASSEMBLIES REQUIRED TO HAVE A FIRE RESISTANCE RATING SHALL COMPLY WITH ONE OF THE FOLLOWING:
 - THEY SHALL CONFIRM WITH THE AISG FIRE RESISTANCE RATING DATED 1985 (OR)
 - THEY SHALL HAVE BEEN TESTED WITH ASTM E119, STANDARD METHODS OF FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS AND ACCEPTED BY THE COMMISSIONER (OR)
 - THEY SHALL HAVE BEEN ACCEPTABLE PRIOR TO THE EFFECTIVE DATE OF THE CODE (OR)
 - APPROVED BY THE OTCR
- THESE DRAWINGS HAVE BEEN PREPARED BY OR AT THE DIRECTION OF THE UNDERSIGNED AND TO THE BEST OF THE UNDERSIGNED'S KNOWLEDGE, INFORMATION AND BELIEF MEET THE REQUIREMENTS OF THE BUILDING CODE
- ALL NEW WORK SHALL COMPLY WITH THE 2020 NYCECC
- TR.1 SHALL BE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO APPLYING FOR CONSTRUCTION PERMITS
- FOLLOWING CHAPTER 33 OF THE 2013 NYCC, PROTECTIONS OF THE PUBLIC AND THE ADJACENT PROPERTIES. REFERENCES IN THE SPECIFICATIONS AND THE DRAWINGS TO THE 1985 BUILDING CODE PARAGRAPHS REGARDING PROTECTION SHALL BE CONSIDERED TO BE THAT OF CHAPTER 33 OF THE NYCC.

PROTECTIVE OVERHEAD BRIDGING

- NYC DOB REQUIRED PROTECTIVE SIDEWALK BRIDGING TO BE INCLUDED IN CONTRACT WORK
- MINIMUM 8'-0" HIGH CLEARANCE AT SIDEWALK, WATERPROOF PLANKING DECK AND 4'-0" PARAPETS
- PROVIDE 4-HR. LIGHTING AND SECURITY SYSTEMS
- PROVIDE PROTECTIVE BRIDGE STEEL POST & BOLTS AT PEDESTRIAN LEVEL
- ALL WORK TO BE PERFORMED BY EXPERIENCED CREW AND LICENSED INSURED CONTRACTOR
- PROTECT ALL PLANTING AREAS & TREES AGAINST DAMAGE.
- COORDINATION ENTRY TO INTERIOR WITH GC HOLDING FIT CONTRACT AT HAFT INTERIOR, C1651R

CODE REFERENCES

- 1968 NEW YORK CITY BUILDING CODE
2022 PLUMBING CODE OF THE CITY OF NEW YORK
2022 MECHANICAL CODE OF THE CITY OF NEW YORK
2022 FUEL GAS CODE OF THE CITY OF NEW YORK
2022 STRUCTURAL CODE OF THE CITY OF NEW YORK
2020 NEW YORK CITY ENERGY CONSERVATION CODE (NYCECC)
2022 NEW YORK CITY ELECTRICAL CODE WITH AMENDMENTS TO NFPA-70:2008
2022 NEW YORK CITY FIRE CODE
2009 ICC /ANSI117.1-2009

REQ. CONTROLLED INSPECTIONS

SPECIAL INSPECTION ITEMS:	
INSULATION & R-VALUES	1RCNY5000-01(H)(1)&(2)
ENERGY CODE COMPLIANCE	BC110.3.5
FINAL INSPECTION	BC109.5/110.5 DR. 14 / 1975
SPRAY-APPLIED FIREPROOFING	BC 1705.14
MASTIC FIRE RESISTING COATINGS	BC 1705.15
FIRE-RESISTANT PENETRATIONS JOINTS	BC 1705.17
SMOKE CONTROL	BC 1705.18

ENERGY CODE

TO THE BEST OF KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THIS APPLICATION IS IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE OF 2020

FLOOD ZONE

THIS PROJECT IS LOCATED WITHIN FLOOD ZONE X ACCORDING TO FEMA FIRN MAP #8604970201F EFFECTIVE 09/05/07

ZONING NOTES

ADDRESS: 243 WEST 27TH STREET, NY, NY 10001
BLOCK: 777
LOT: 18
ZONING MAP: 80
ZONING DISTRICT: C8-2A
NO CHANGE TO USE, EGRESS, OR OCCUPANCY

PROJECT DESCRIPTION

THE SCOPE OF THE PROJECT INCLUDES REMOVALS OF EXISTING ROOFING SYSTEMS, COPING AND ALL WATERPROOFING. THE SCOPE INCLUDES NEW ROOFING SYSTEMS, GUARDRAILS, AND PHOTOVOLTAIC PANELS. NOTE, THE MECHANICAL EQUIPMENT IS REPLACED UNDER A SEPARATE CONTRACT.

NEW ROOFING SYSTEMS INCLUDING, BUT NOT LIMITED TO NEW FLASHING, COPING, AND WATERPROOFING DETAILS TO BE COORDINATED BY A SOLE-SOURCE MANUFACTURER COVERING THE WARRANTY TERMS LISTED IN THE RESPECTIVE SPECIFICATIONS.

EDLGROUP
© DLG Group



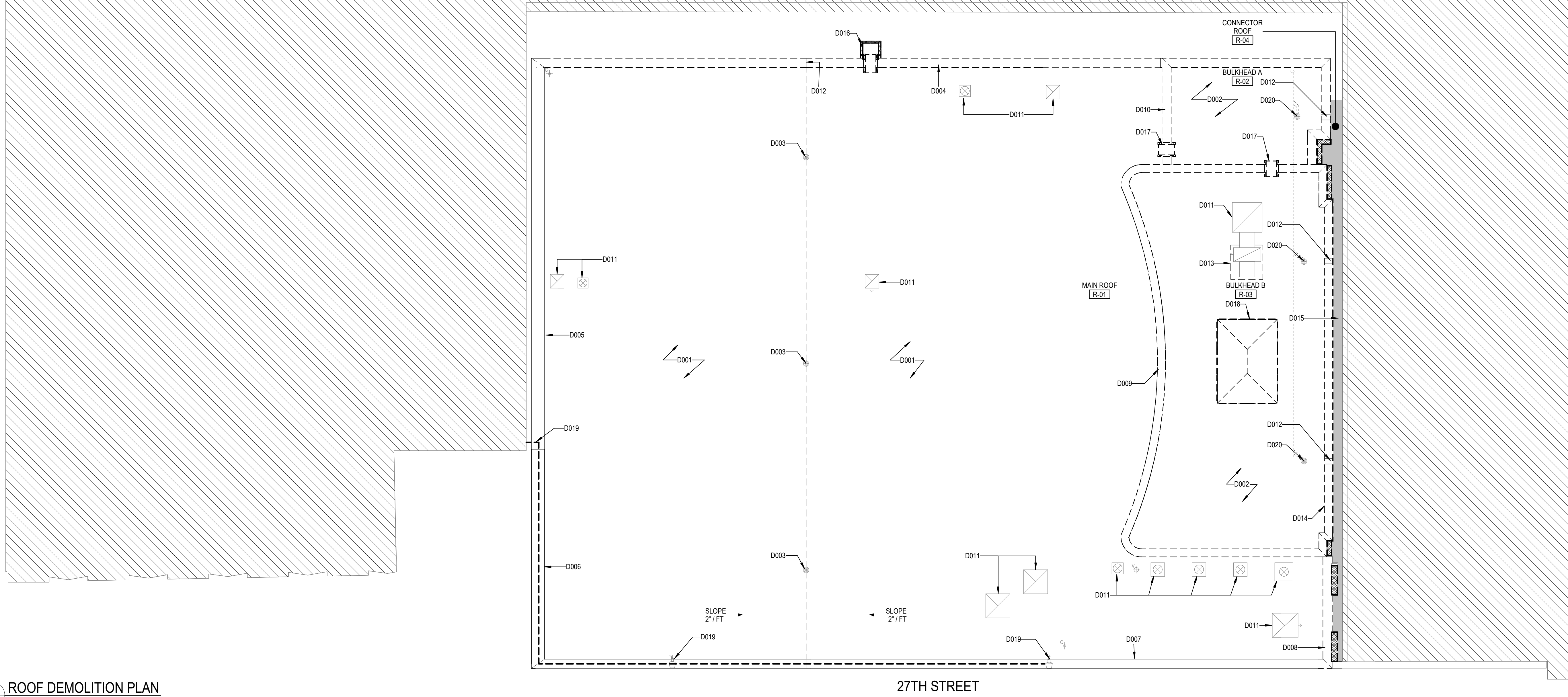
FIT HAFT THEATER - ROOF REPLACEMENT & PV PANELS

243 WEST 27TH STREET NEW YORK, NY 10001
NO. 136845-1 - ARCHITECTURAL

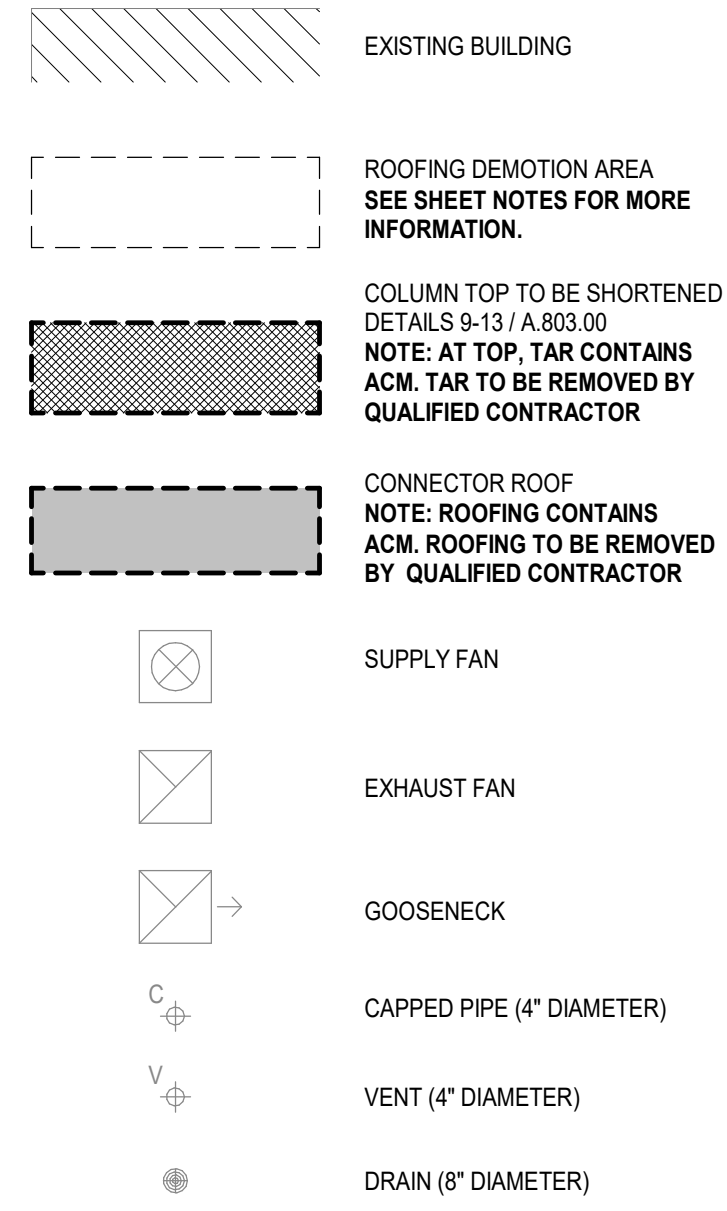
ISSUE FOR BID / FILING - C1668
02/28/2025
REVISIONS

57-23140-01
CODE & ENERGY PLAN

CP105.00



DEMOLITION LEGEND



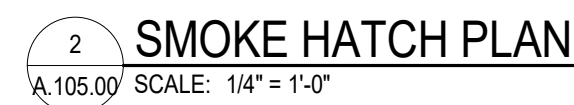
DEMOLITION GENERAL NOTES

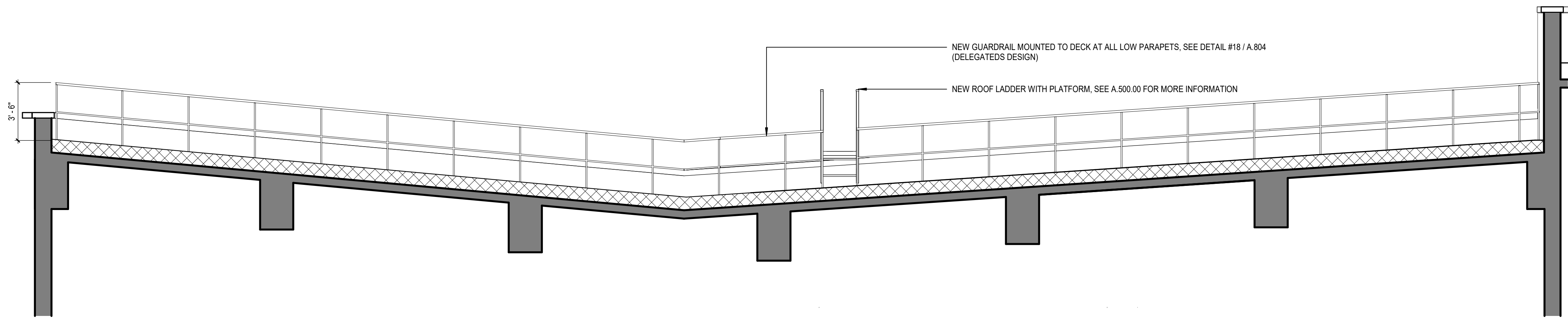
- A. COORDINATE ALL DEMOLITION AND PHASING EFFORTS WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE. EVERY EFFORT MUST BE MADE TO MINIMIZE THE DISTURBANCE TO ADJACENT OPERATIONS. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH THE OWNERS.
- B. SAFETY AND HEALTH. IN ALL CASES, PROVISIONS SHALL BE MADE FOR USER'S SAFETY.
- C. COORDINATE ANY DISRUPTION OF UTILITY SERVICES WITH THE OWNER AND SPECIALTIES.
- D. MAINTAIN A SECURE, WEATHER-TIGHT ENCLOSURE AT ALL TIMES.
- E. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
- F. OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
- G. PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO ANY DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
- H. REPAIR OR REPLACE ITEMS THAT ARE DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH.
- I. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
- J. MAINTAIN AND PROTECT ALL EXISTING ELECTRICAL POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF THEIR SERVICE.
- K. REMOVE ALL EXISTING PENETRATIONS RESULTING FROM REMOVAL OR RE-ROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, AND OTHER CABLES, AS REQUIRED TO ACHIEVE FIRE-RESISTANT RATING, GASKET SEPARATIONS AND WATERTIGHT CONSTRUCTION.
- L. CAP ALL DISCONNECTED MECHANICAL PIPING LINES WITHIN THE SAME FLOOR PLATE. PATCHWORK REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
- M. NOTE: SEE SCHEDULE ACIM-A1 AND ACIM-A2 FOR ASBESTOS CONTAINING MATERIAL. SHEET TO BE REMOVED BY QUALIFIED CONTRACTOR, INCLUDING:
 - a. ACIM AT CALLK AT MAIN ROOF & BULKHEAD TOPS
 - b. ACIM AT CONNECTOR ROOF'S EXTERIOR ASSEMBLY & TAIL

REFERENCE KEYNOTES

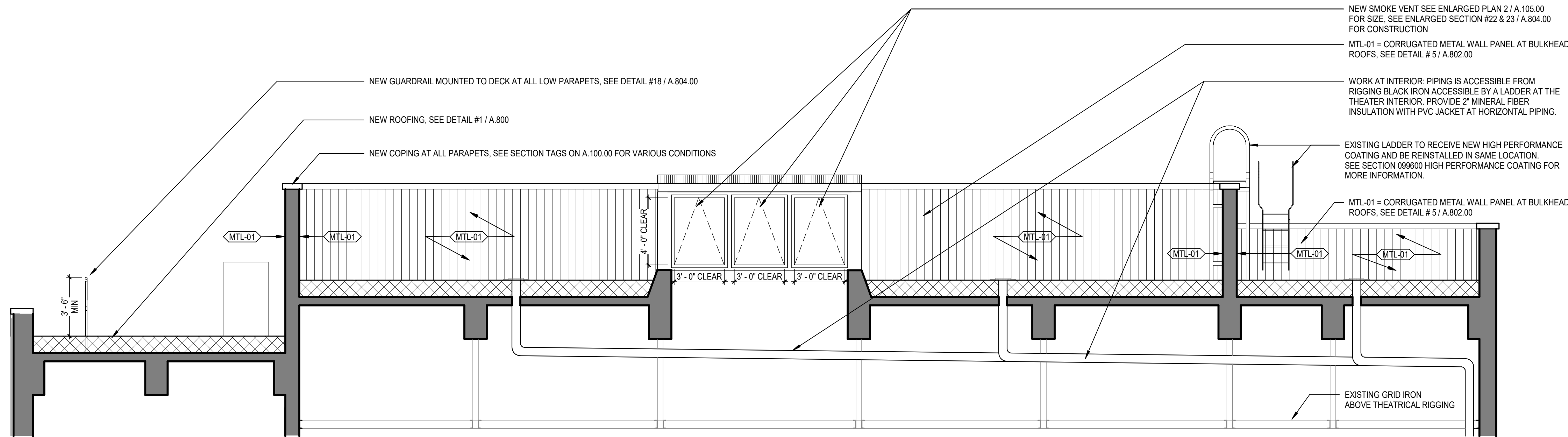
- D010 DEMO EXISTING ROOF MEMBRANE, FLASHING MEMBRANE, LIGHTGRADE PROTECTED MEMBRANE, ROOF PANELS, AND EXISTING CONCRETE PAVERS TO EXISTING CONCRETE DECK.
- D020 DEMO EXISTING ROOF MEMBRANE, FLASHING MEMBRANE, EXTRUDED POLYSTYRENE INSULATION, FILTER FABRIC, AND STONE TO EXISTING CONCRETE DECK.
- D030 CLEAN AND PREP ROOF DRAINS. TP.
- D040 REMOVE METAL COPING, COPING SECUREMENT BRACKETS/SHIMS, AND SHEET METAL COUNTER FLASHING/EXTENDER. RETAIN BRICK MASONRY.
- D050 RETAIN COPING. REMOVE SHEET METAL FLASHING FROM COPING. CUTTING OFF OF METAL FLASHING THROUGH-WALL METAL COUNTER FLASHING; RETAIN BRICK MASONRY.
- D060 RETAIN COPING. CUT/REMOVE FACE SEGMENT (ONLY) OF THROUGH-WALL METAL COUNTER FLASHING. RETAIN BRICK MASONRY.
- D070 RETAIN COPING. REMOVE SHEET METAL COUNTER FLASHING AND BRICK MASONRY.
- D080 REMOVE METAL COPING, COPING SECUREMENT BRACKETS/SHIMS, AND SHEET METAL COUNTER FLASHING/EXTENDER. RETAIN BRICK MASONRY. DEMO COPING/SHIELD METAL FLASHING/MASONRY (BRICK/CMU), AT TOP OF WALL, TO 2" BELOW TOP OF EXISTING PARAPET WALL.
- D090 REMOVE METAL COPING, COPING SECUREMENT BRACKETS/SHIMS, REMOVE METAL SIDING, SECUREMENT BRACKETS/SHIMS, AND SHEET METAL COUNTER FLASHING/STRIPPING MEMBRANE, AND SHEET METAL COUNTER FLASHING EXTENDER.
- D100 REMOVE METAL COPING, COPING SECUREMENT BRACKETS/SHIMS, AND SHEET METAL COUNTER FLASHING/EXTENDER (ONLY) OF THROUGH-WALL METAL COUNTER FLASHING; RETAIN BRICK MASONRY.
- D110 REMOVE SHEET METAL COUNTER FLASHING EXTENDER (SKIRT).
- D120 CORE HOLE, THROUGH BRICK MASONRY PARAPET WALL, FOR REMOVED SLEEVE.
- D130 DEMOLISH EXISTING CONCRETE PAD AND SHEET METAL CAP FLASHING AND REPLACE WITH NEW CONCRETE PAD AND SUPPLEMENT WITH NEW CONCRETE OVERLAY TO MATCH FINISHNESS OF NEW ROOF DECK.
- D140 REMOVE METAL COPING, COPING SECUREMENT BRACKETS/SHIMS, SHEET METAL COUNTER FLASHING/EXTENDER, RETAIN BRICK MASONRY. DEMO COPING/SHIELD METAL FLASHING/MASONRY (BRICK/CMU), AT COLLINGS, TO 2" BELOW TOP OF EXISTING PARAPET WALL.
- D150 REMOVE FACE SEGMENT (ONLY) OF THROUGH-WALL METAL COUNTER FLASHING; RETAIN BRICK MASONRY. NOTE: EXISTING MAIN CAPPING OF PARAPET WALL CONTAINS ACM AND SHALL BE REMOVED BY A QUALIFIED VENDOR.
- D160 DEMO EXISTING ROOF MEMBRANE, FLASHING MEMBRANE, AND PERLITE INSULATION TO CONCRETE DECK, AT BRICK WALL AND EXISTING FACE SEGMENT (ONLY) OF THROUGH-WALL METAL COUNTER FLASHING; RETAIN BRICK MASONRY.
- D170 REMOVE AND STORE, FOR A LATER REINSTALLATION, CONCRETE WALL, PARAPET WALL, AND SHEET METAL THROUGH-WALL METAL COUNTER FLASHING; REMOVE ROOFING MEMBRANE, TIE THROUGH-WALL METAL COUNTER FLASHING; CONCRETE WALL, PARAPET WALL, AND SHEET METAL THROUGH-WALL METAL COUNTER FLASHING; REMOVE ROOFING MEMBRANE, TAR AT BRICK WALL, AND COLLUM CAPS AND PARAPET AT COPING. CONCRETE WALL AND SHALL BE REMOVED BY A QUALIFIED VENDOR.
- D180 REMOVE EXISTING ROOF LADDER, CAKE, AND LANDING. PREPARE AREA TO RECEIVE NEW LADDER AND LANDING.
- D190 REMOVE EXISTING ROOF LADDER, CAKE, AND LANDING. REFINISH AND REINSTATE AT SAME LOCATION.
- D200 REMOVE EXISTING SKYLIGHT AND SMOKE HAULT. DEMOLISH DOWN TO CONCRETE CURB BELOW. PROVIDE TEMPORARY SAFETY LIGHTNESS AT SAME LOCATION.
- D210 REMOVE EXISTING CONDUIT FROM PARAPET COPING AND PREPARE TO LOCATE TO ROOFTOP PEDESTALS. SEE ELEC FOR MORE INFO.
- D220 CLEAN AND PREP ROOF DRAINS. TP. WORK AT INTERIOR: PIPING IS ACCESSIBLE FROM RIGGING BACK IRON ACCESSIBLE BY A LADDER. WORK AT EXTERIOR: INTERIOR REMOVE EXISTING PIPE INSULATION.



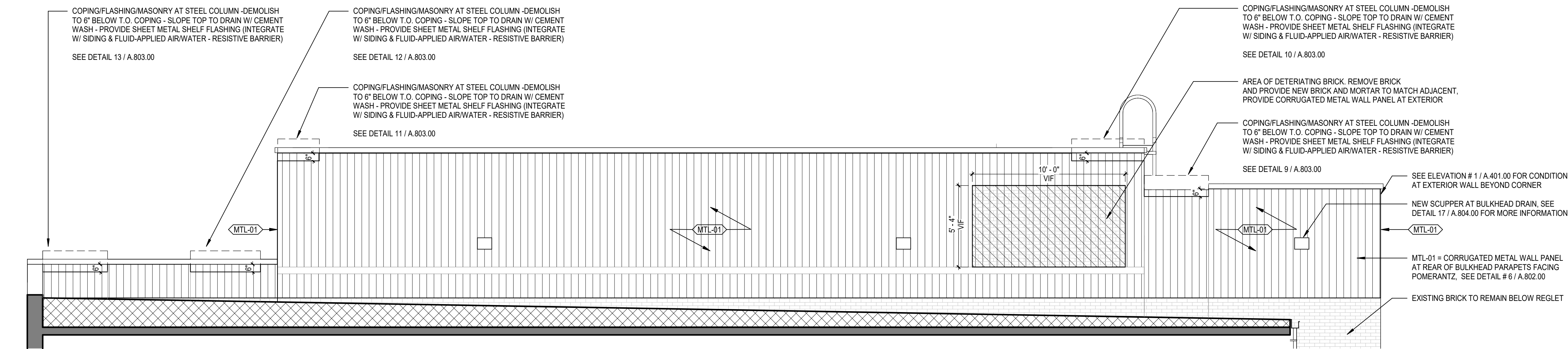




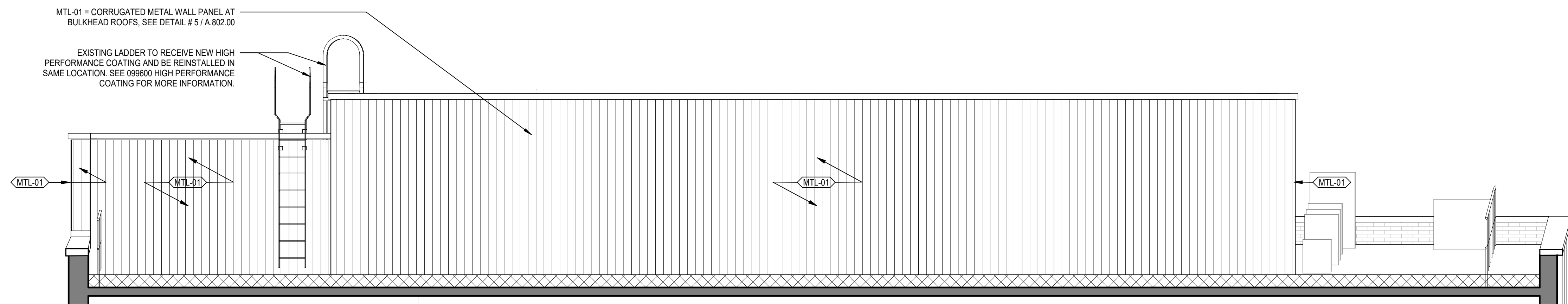
1 ELEVATION LOOKING NORTH AT GUARDRAIL
A.400.00 SCALE: 1/4" = 1'-0"



2 ELEVATION LOOKING WEST AT BULKHEAD B
A.400.00 SCALE: 1/4" = 1'-0"



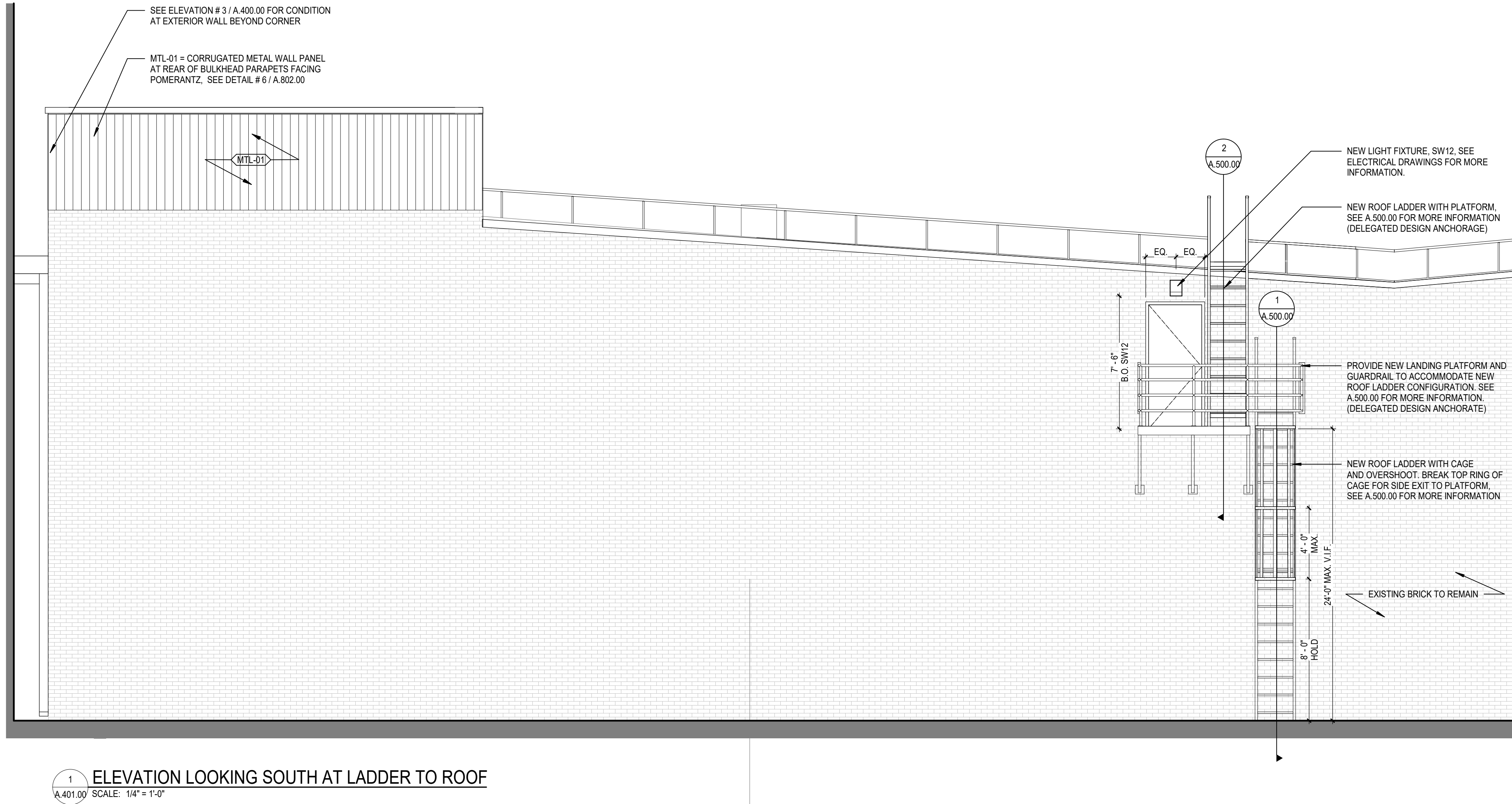
3 ELEVATION LOOKING WEST AT BULKHEAD B REAR WALL
A.400.00 SCALE: 1/4" = 1'-0"



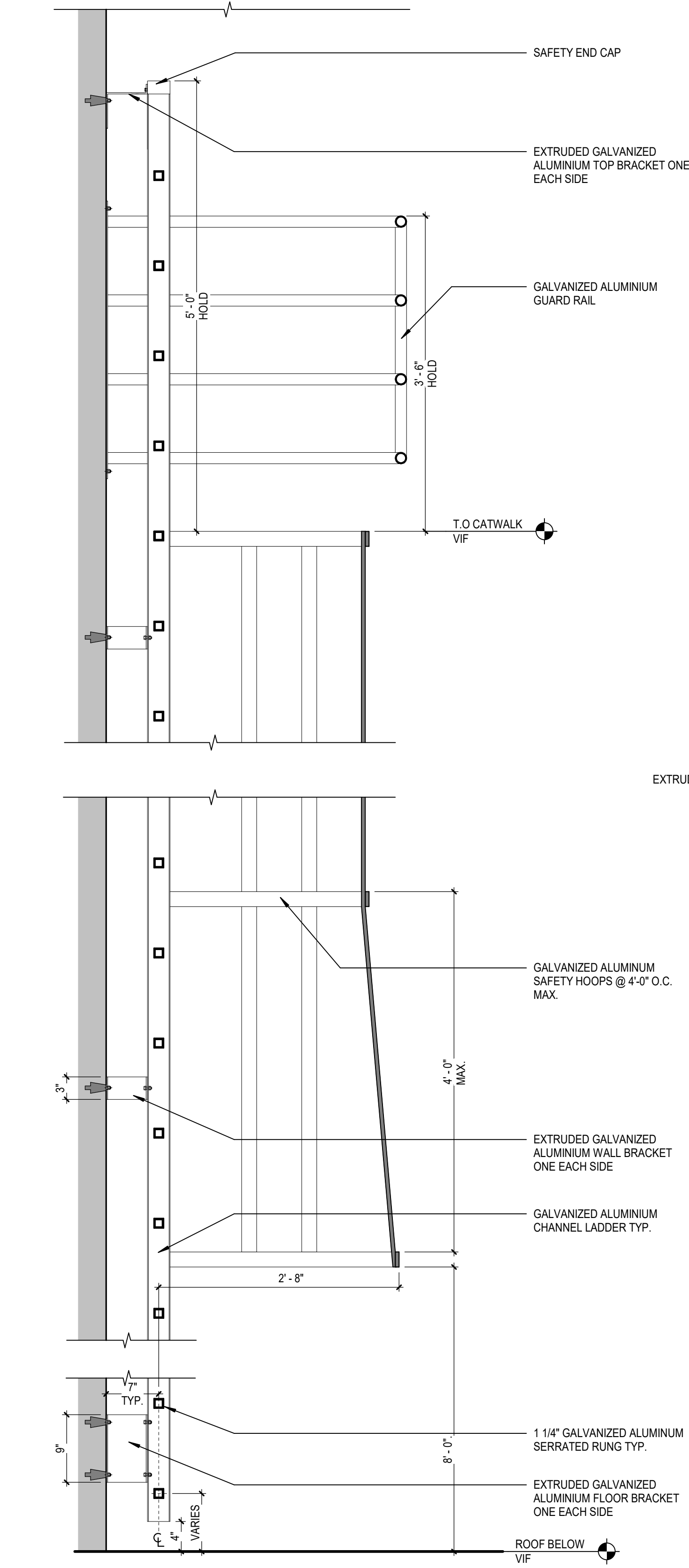
4 ELEVATION LOOKING EAST AT BULKHEAD B
A.400.00 SCALE: 1/4" = 1'-0"

ELEVATION HATCH KEY

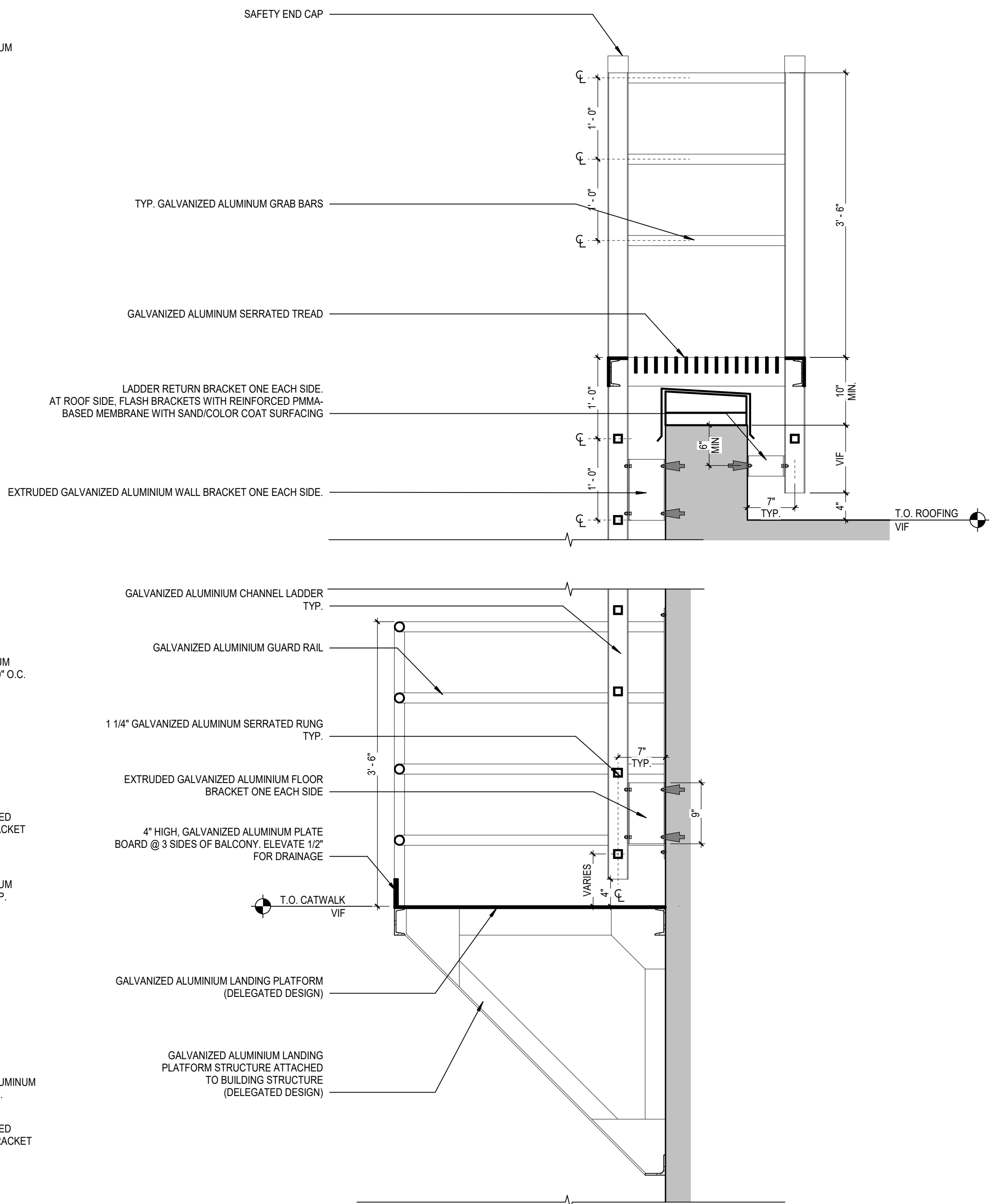
	EXISTING BRICK TO REMAIN
	AREA OF DETERIATING BRICK. REMOVE BRICK AND PROVIDE NEW BRICK AND MORTAR TO MATCH ADJACENT
	VERTICAL CORRUGATED ALUMINUM PANEL
	ROOFING ASSEMBLY
	EXISTING ROOF SLAB



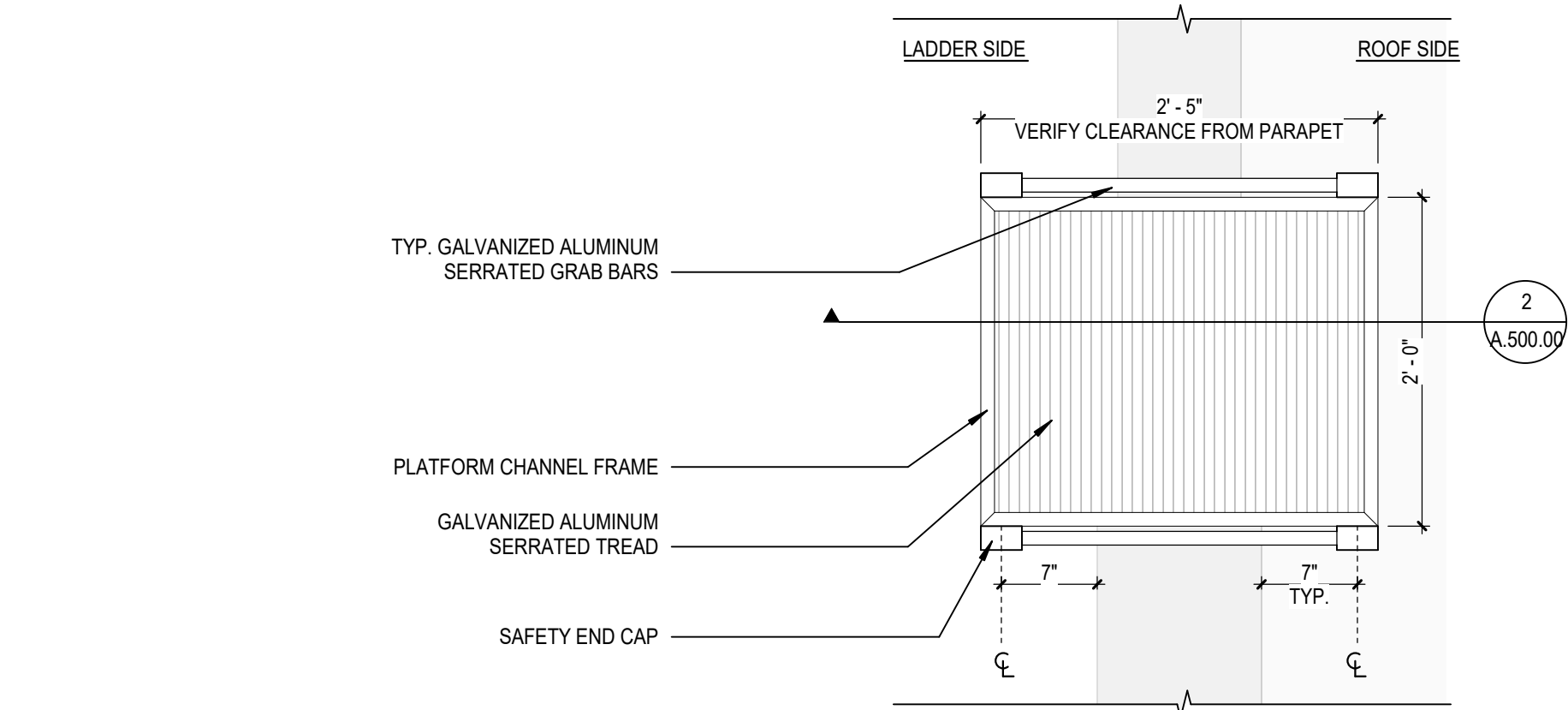
A:\desk Doc\157-23140-00 FIT Haft Auditorium Phase 2 Renovations\157-23140-01 FIT Haft Roof_AR_24.rvt
2/28/2025 4:15:11 PM



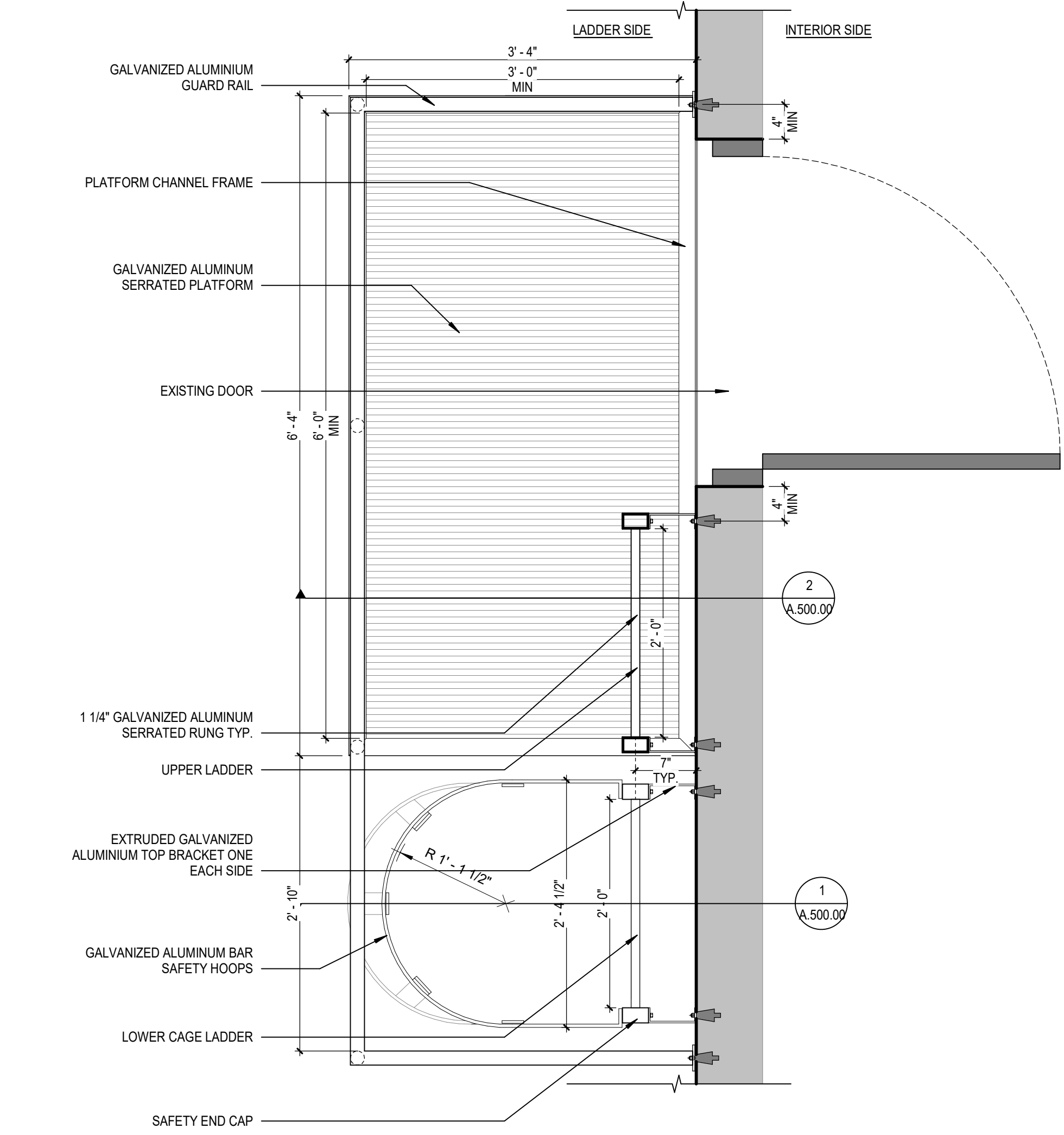
1 SECTION THROUGH CAGED LADDER
A.500.00 SCALE: 1" = 1'-0"



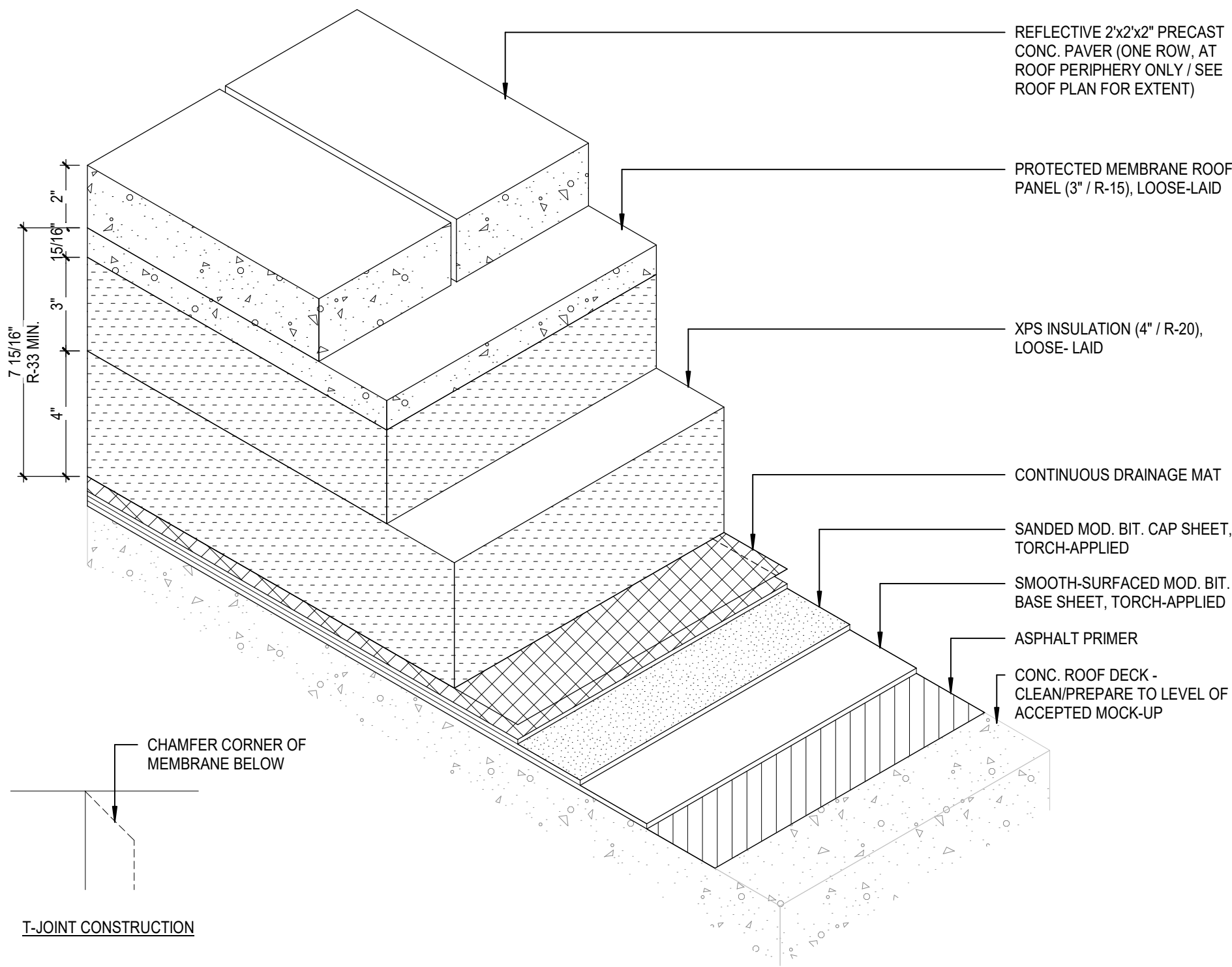
2 SECTION THROUGH TOP LADDER
A.500.00 SCALE: 1" = 1'-0"



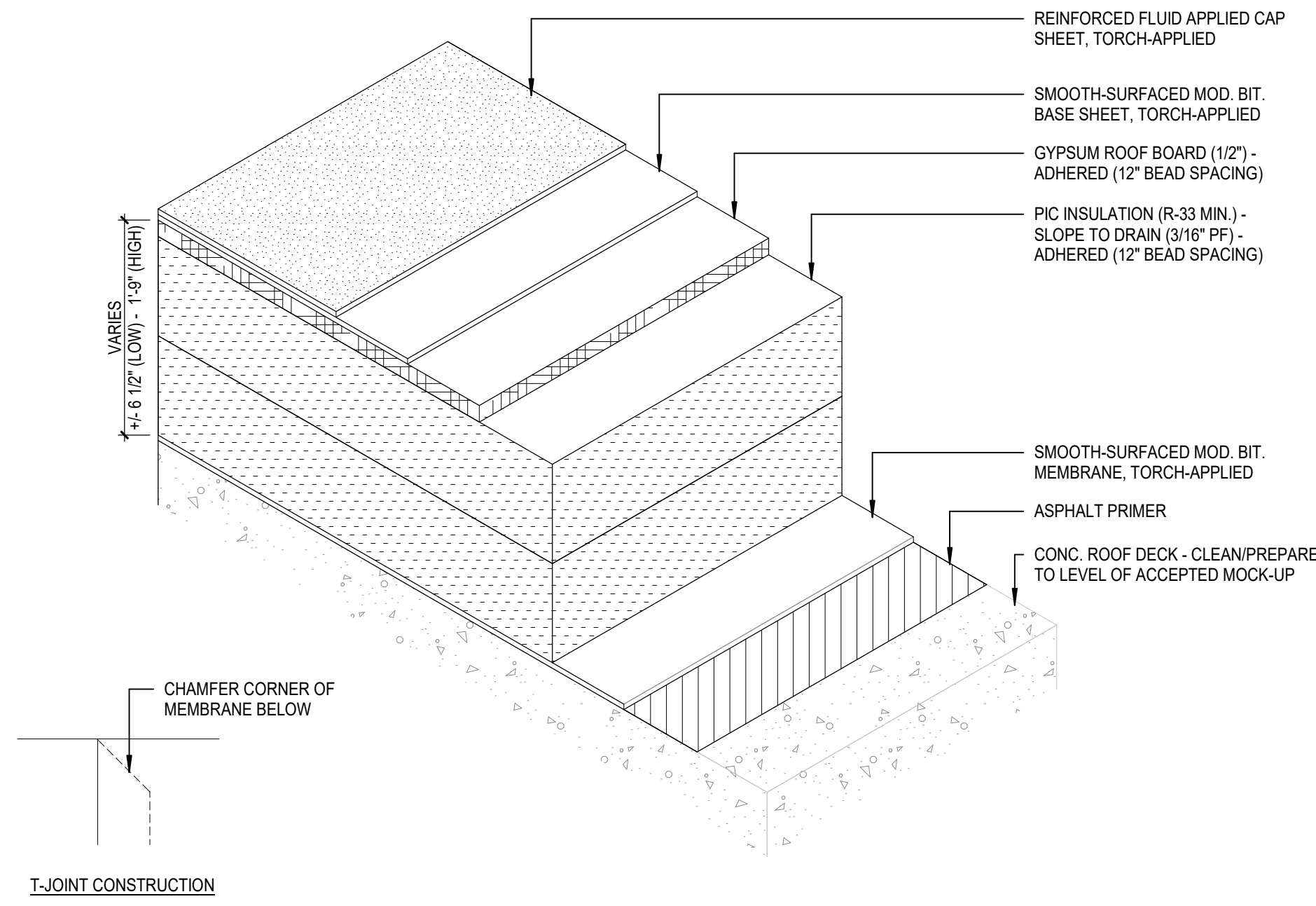
3 PLAN - PLATFORM AT ROOF LEVEL
A.500.00 SCALE: 1" = 1'-0"



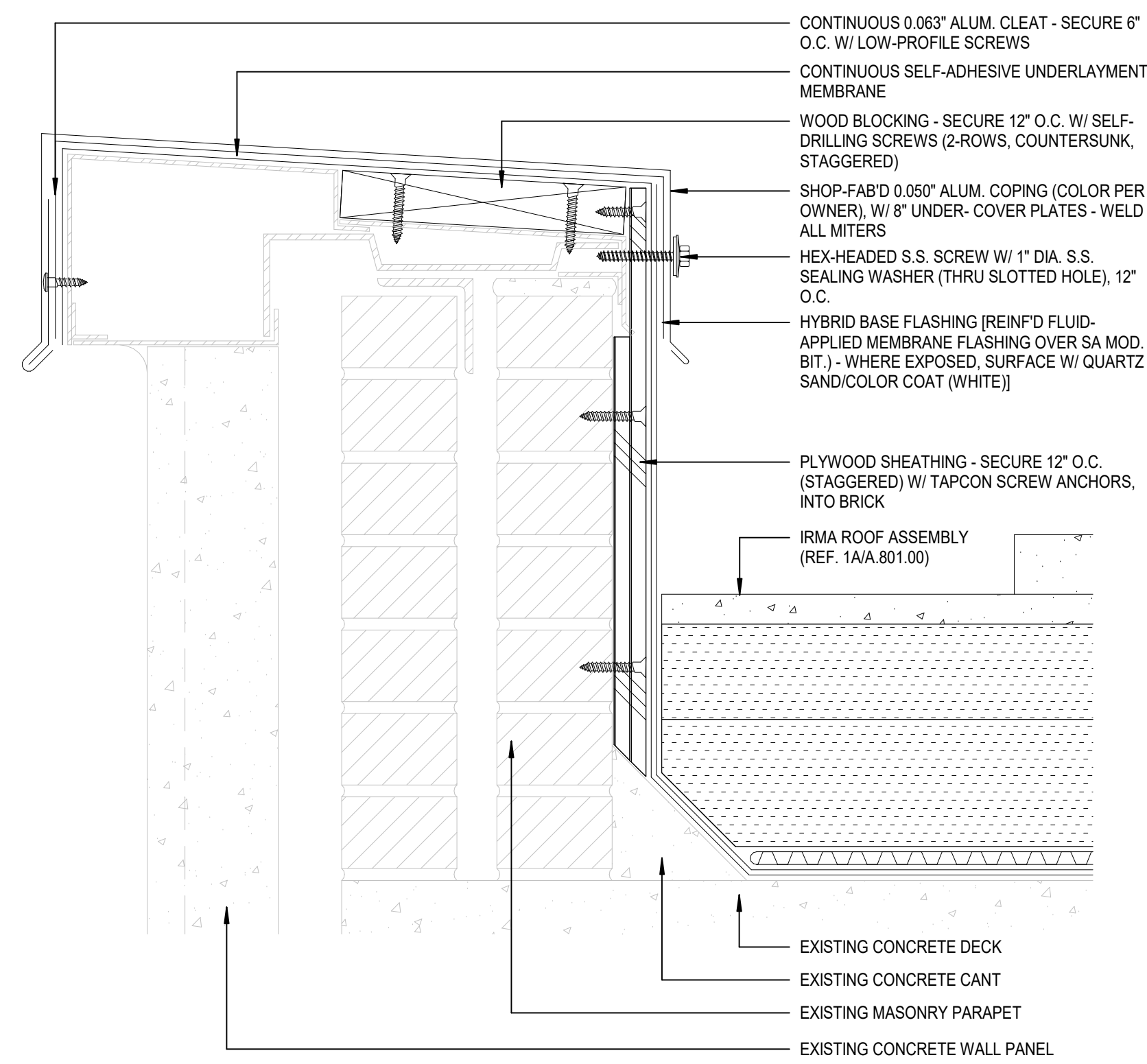
4 PLAN - LADDER AT LANDING PLATFORM
A.500.00 SCALE: 1" = 1'-0"



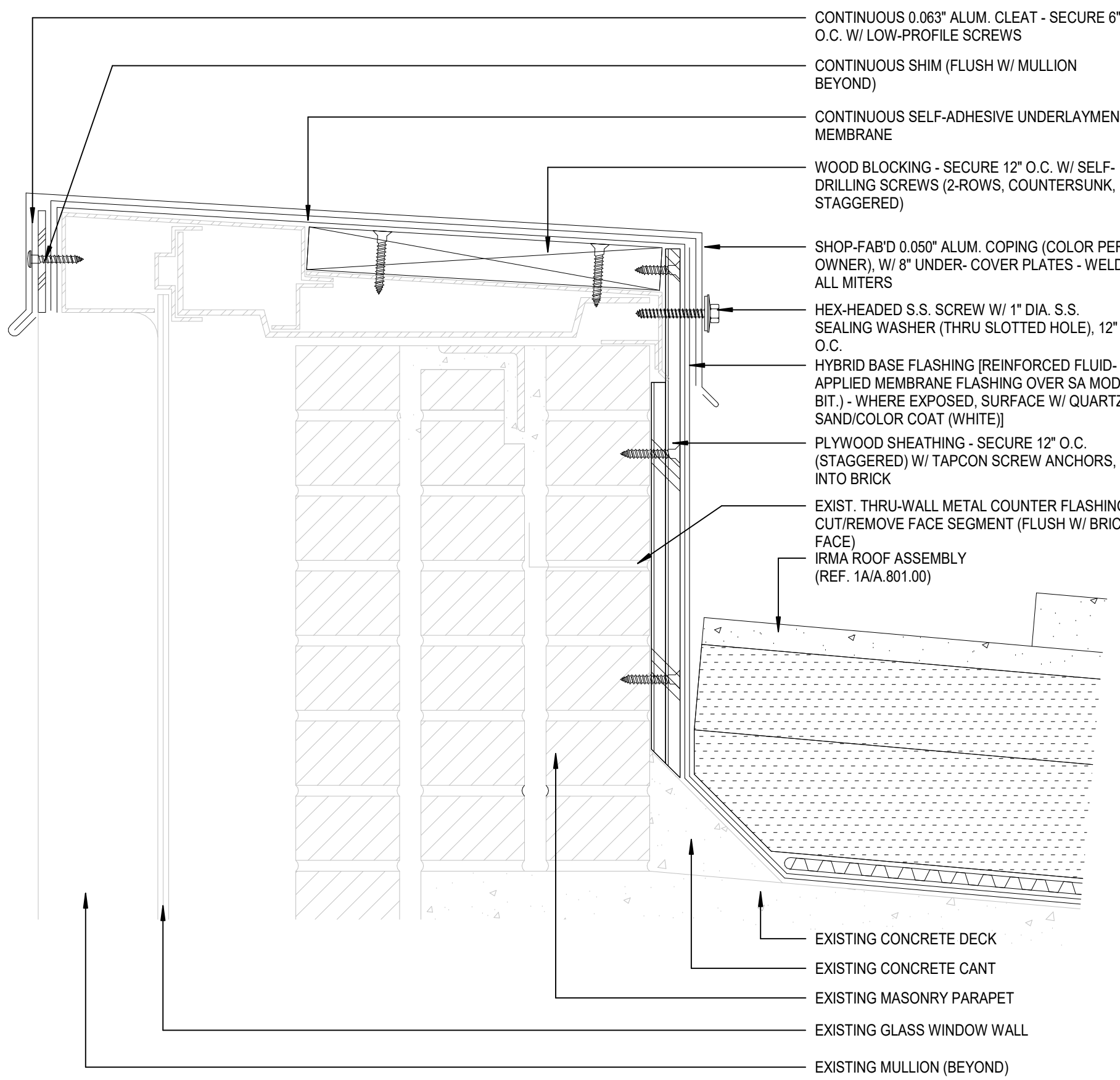
1A PROTECTED ROOF MEMBRANE ASSEMBLY - IRMA
A.801.00 SCALE: 3" = 1'-0"



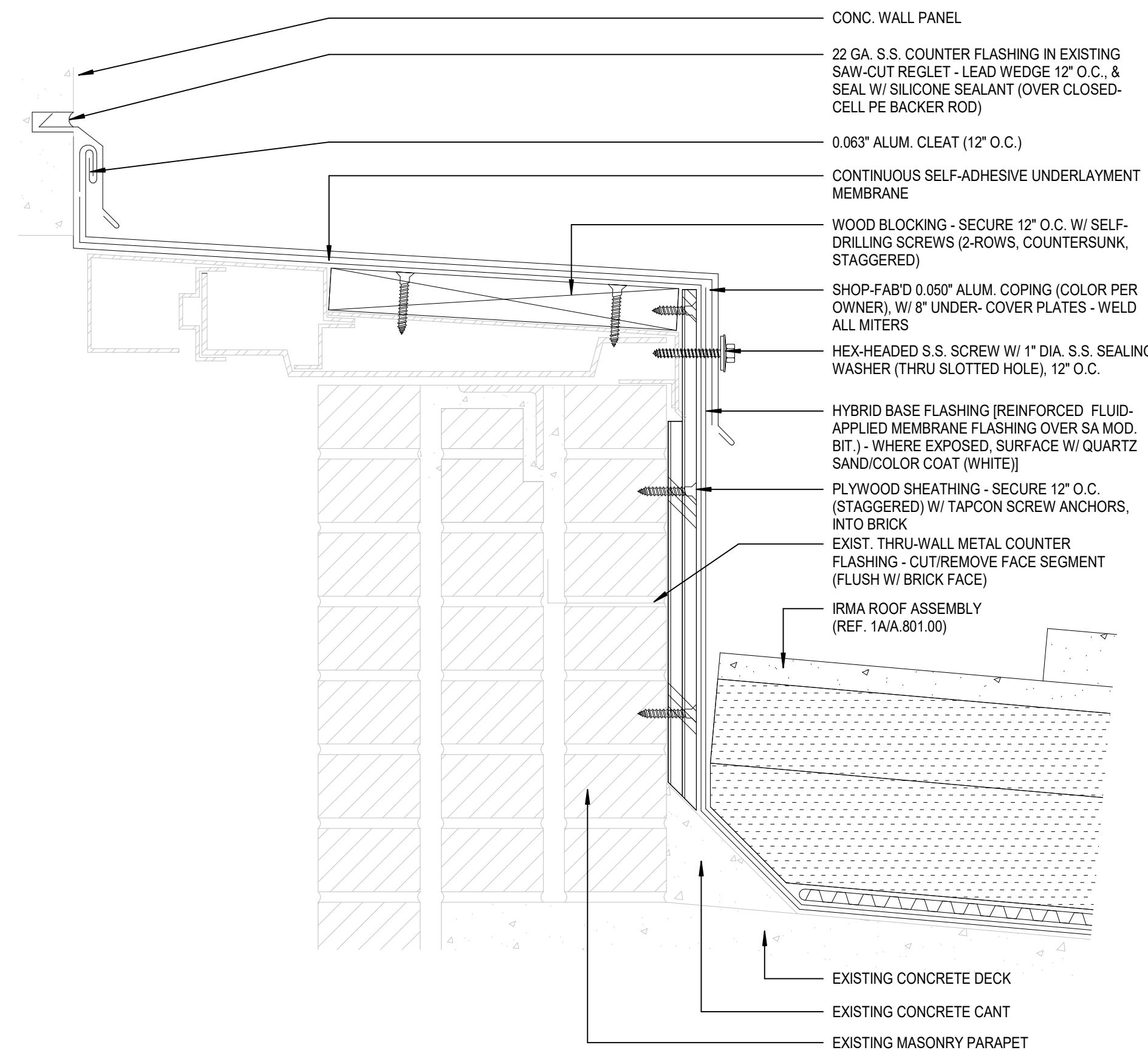
1B INSULATED MEMBRANE ASSEMBLY - CONVENTIONAL
A.801.00 SCALE: 3" = 1'-0"



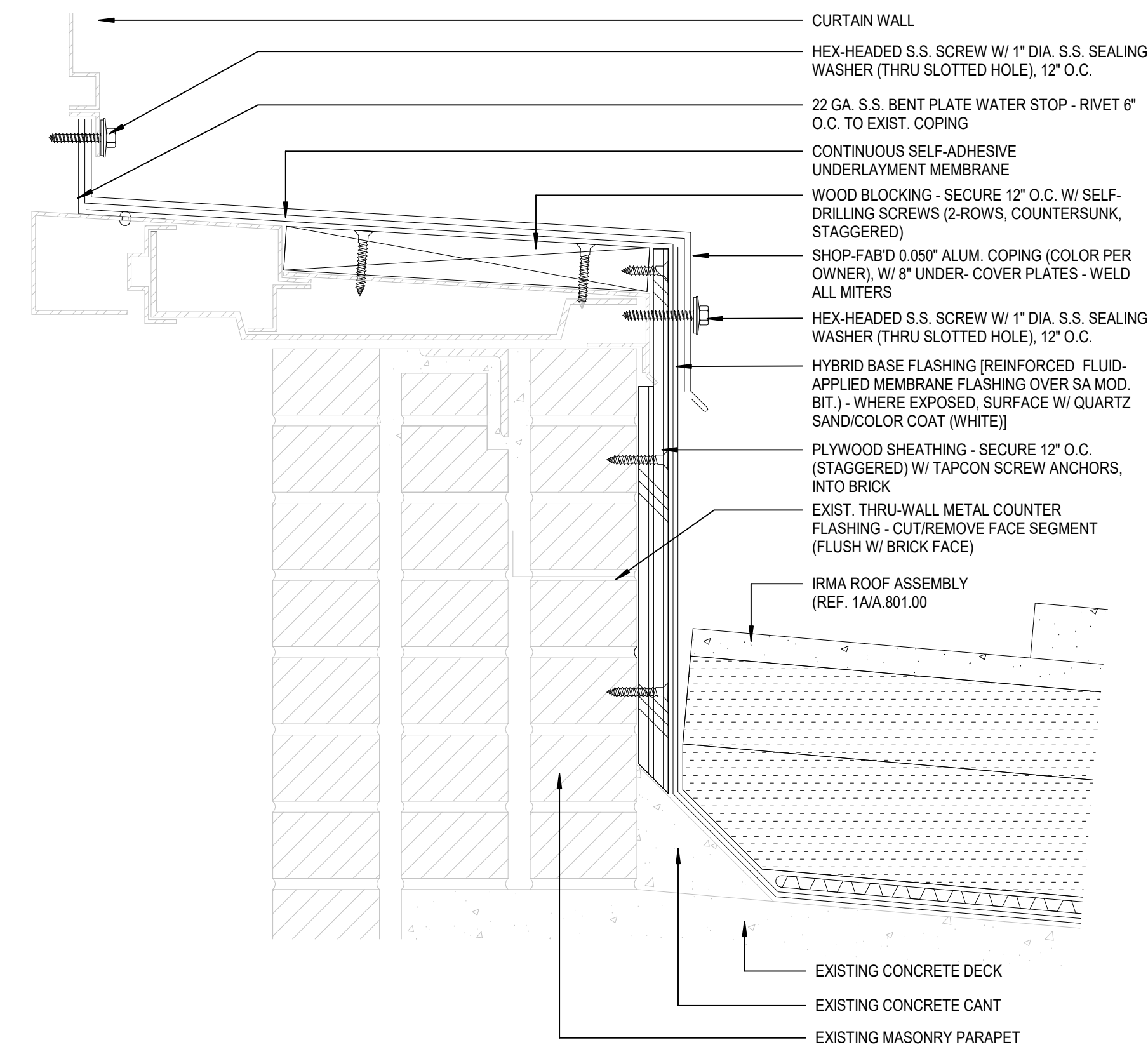
2 SECTION THROUGH PARAPET WALL (S)
A.801.00 SCALE: 3" = 1'-0"



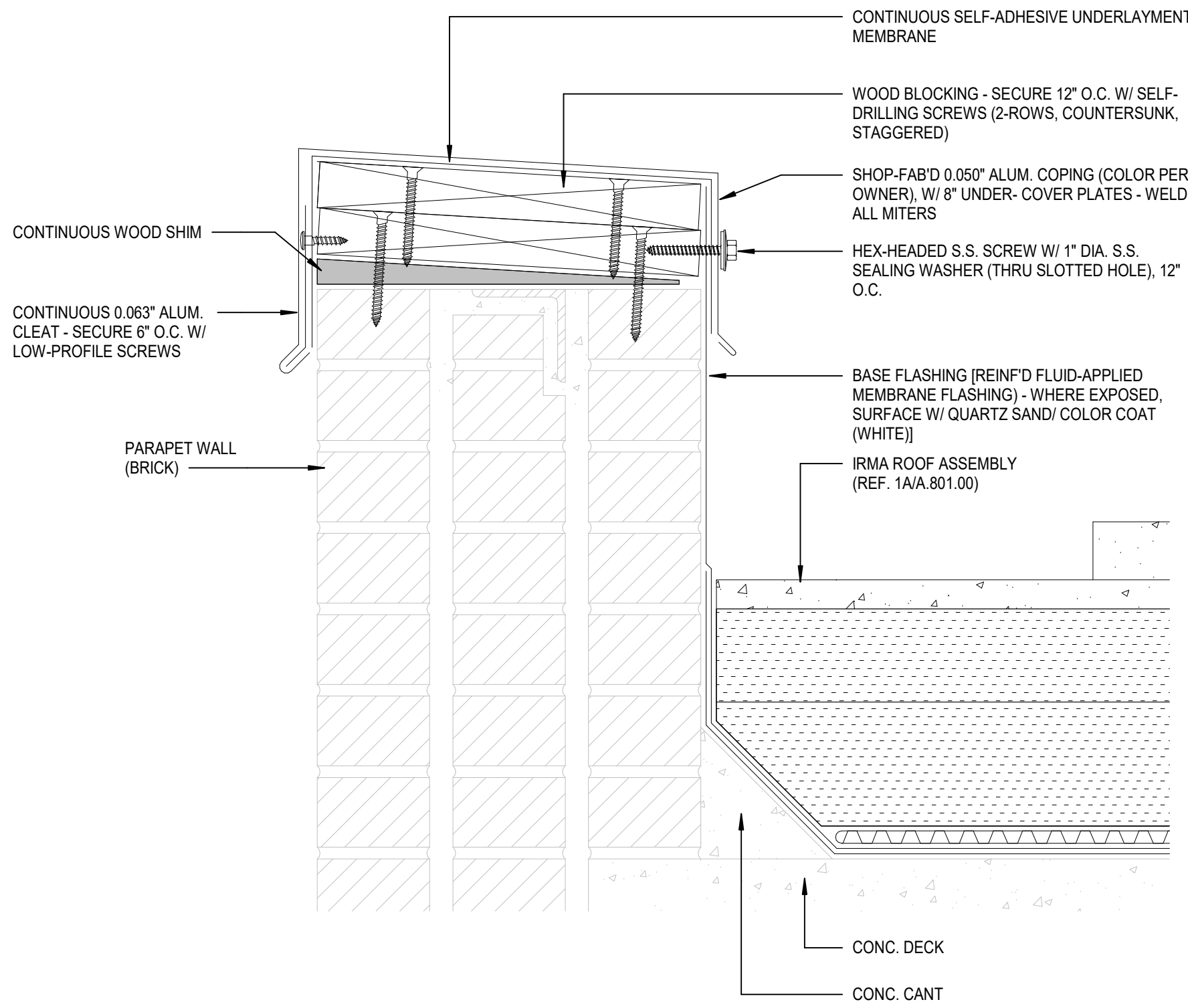
2A SECTION THROUGH PARAPET WALL (W1)
A.801.00 SCALE: 3" = 1'-0"



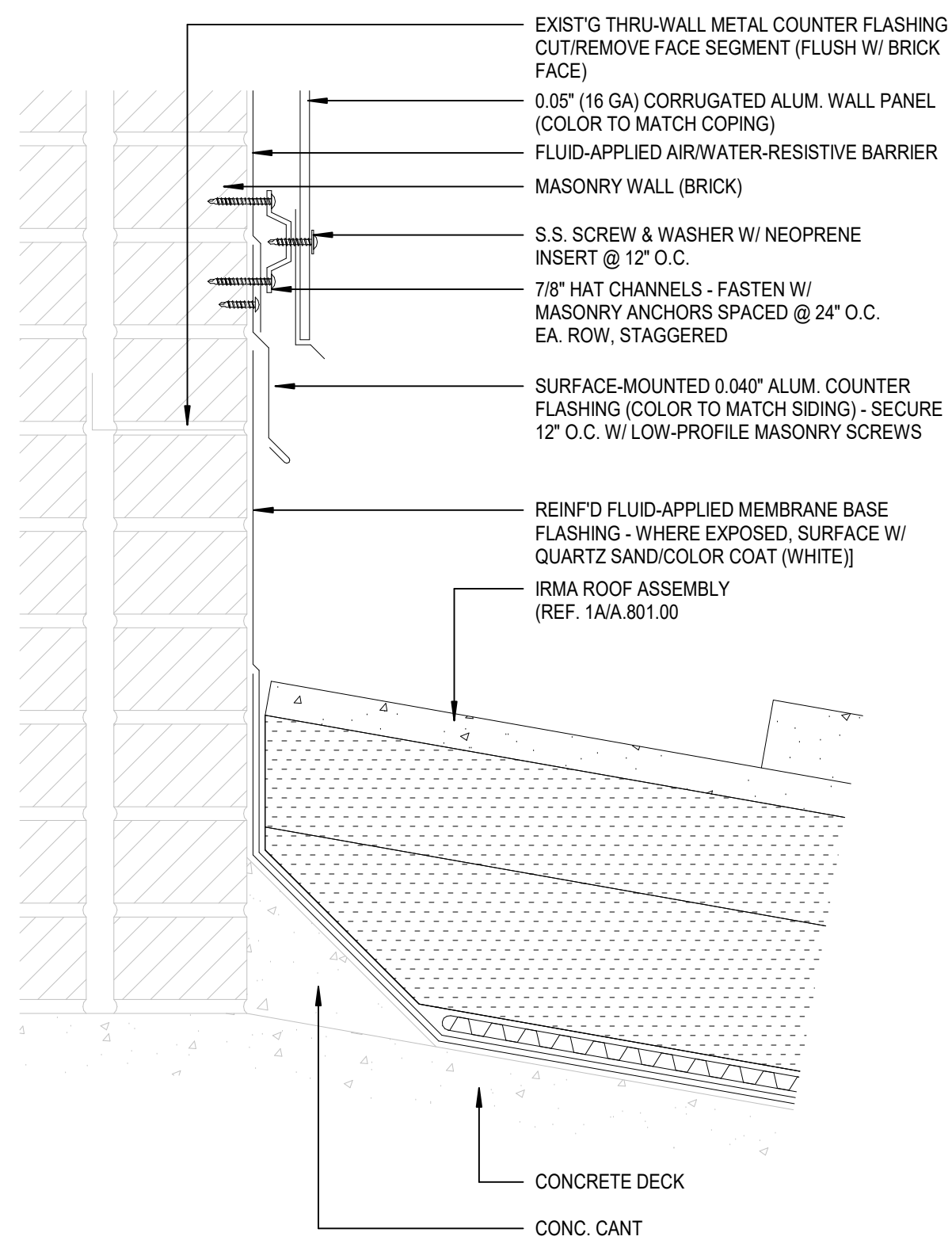
2B SECTION THROUGH PARAPET WALL (W2)
A.801.00 SCALE: 3" = 1'-0"



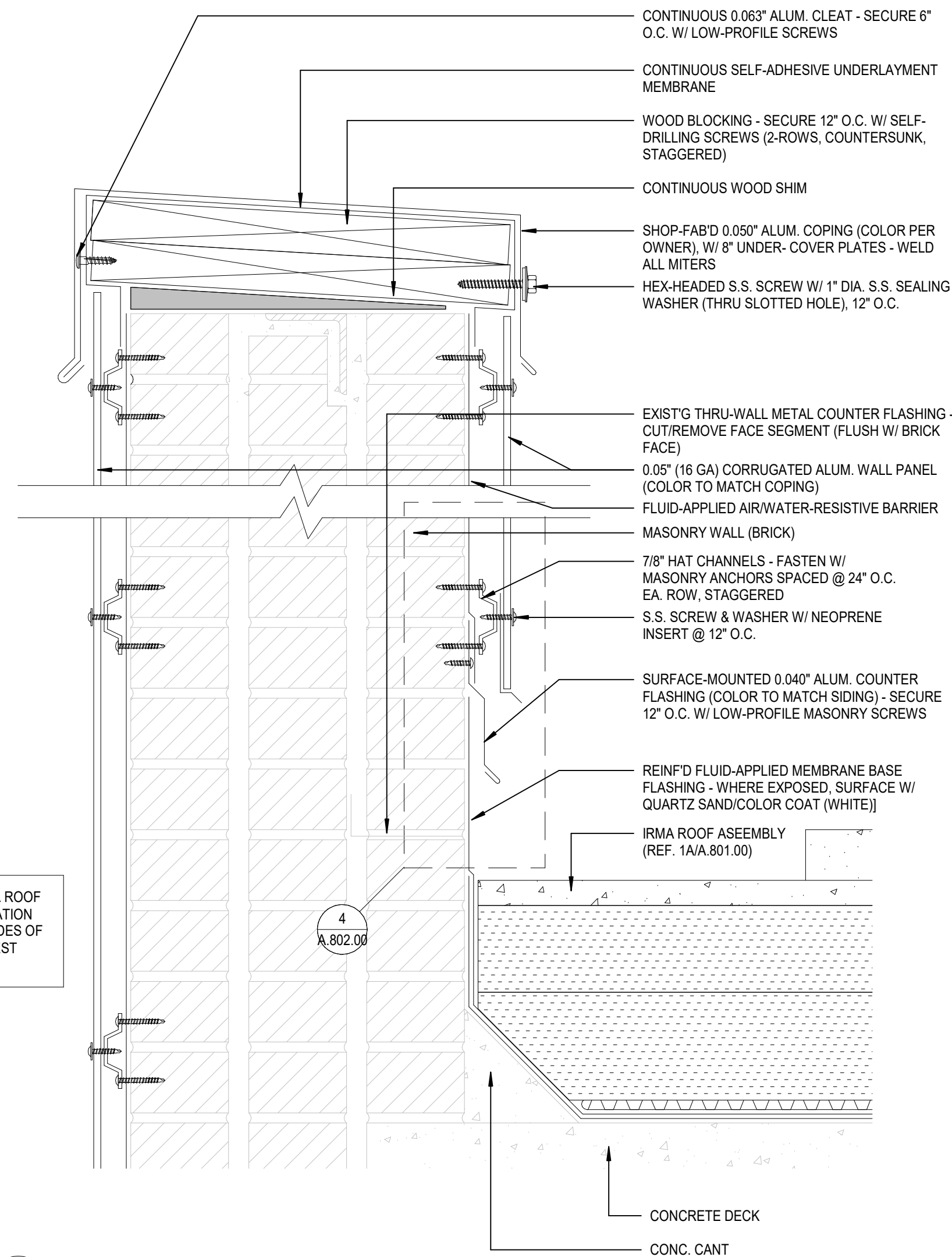
2C SECTION THROUGH PARAPET WALL (W3)
A.801.00 SCALE: 3" = 1'-0"



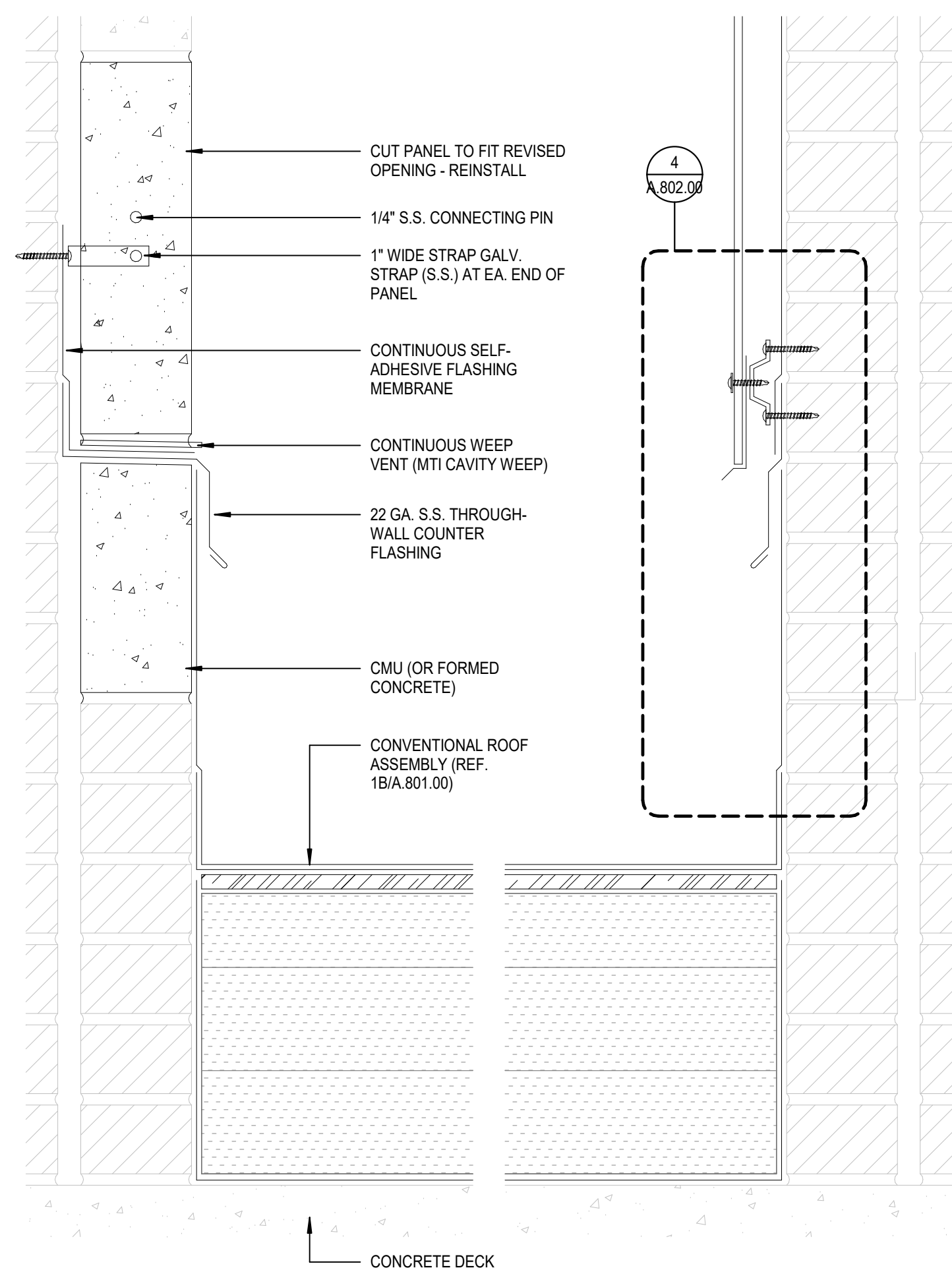
3 SECTION THROUGH PARAPET WALL (N)
A.802.00 SCALE: 3" = 1'-0"



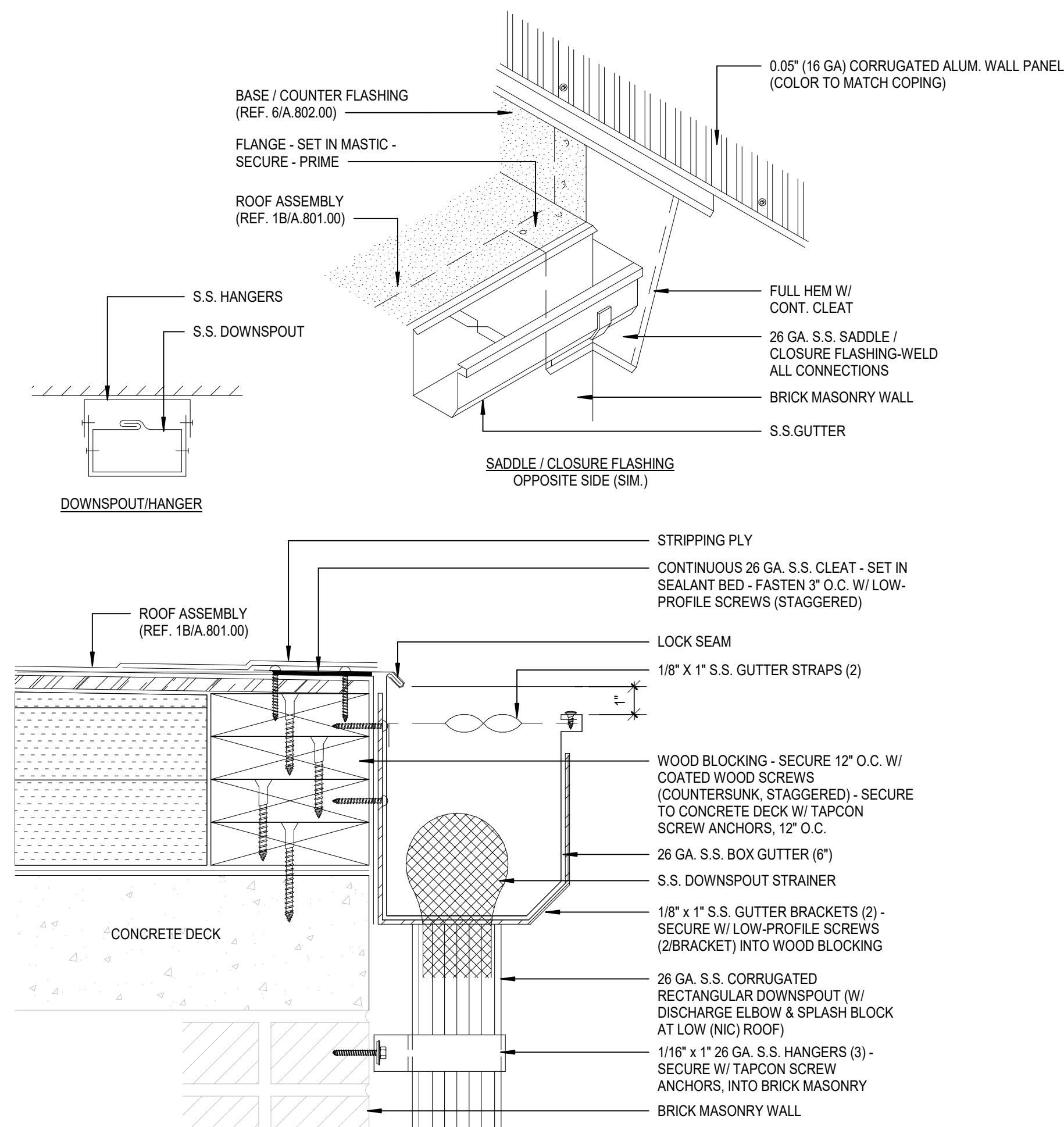
4 SECTION THROUGH BULKHEAD BASE
A.802.00 SCALE: 3" = 1'-0"



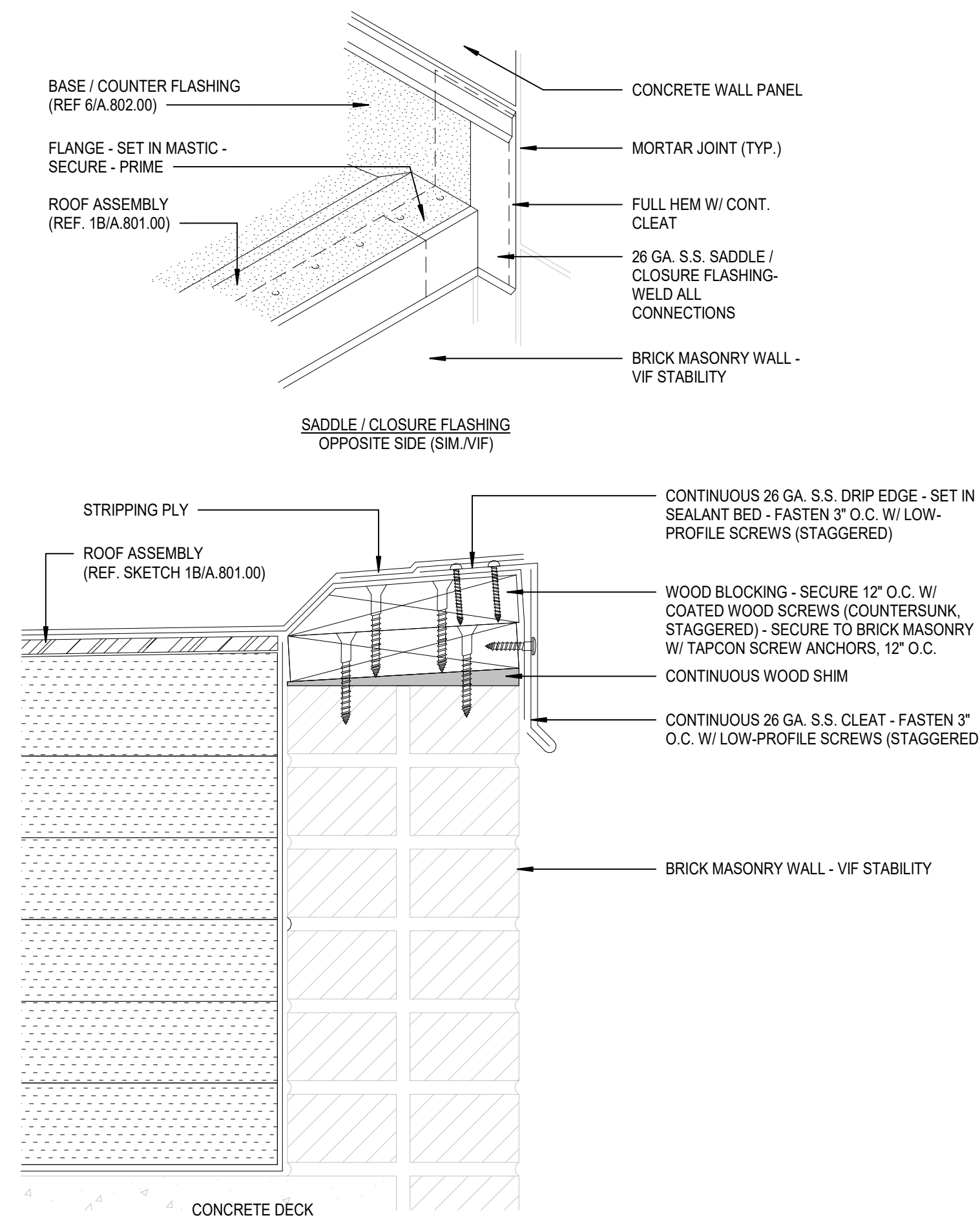
5 SECTION THROUGH PARAPET WALL
A.802.00 SCALE: 3" = 1'-0"



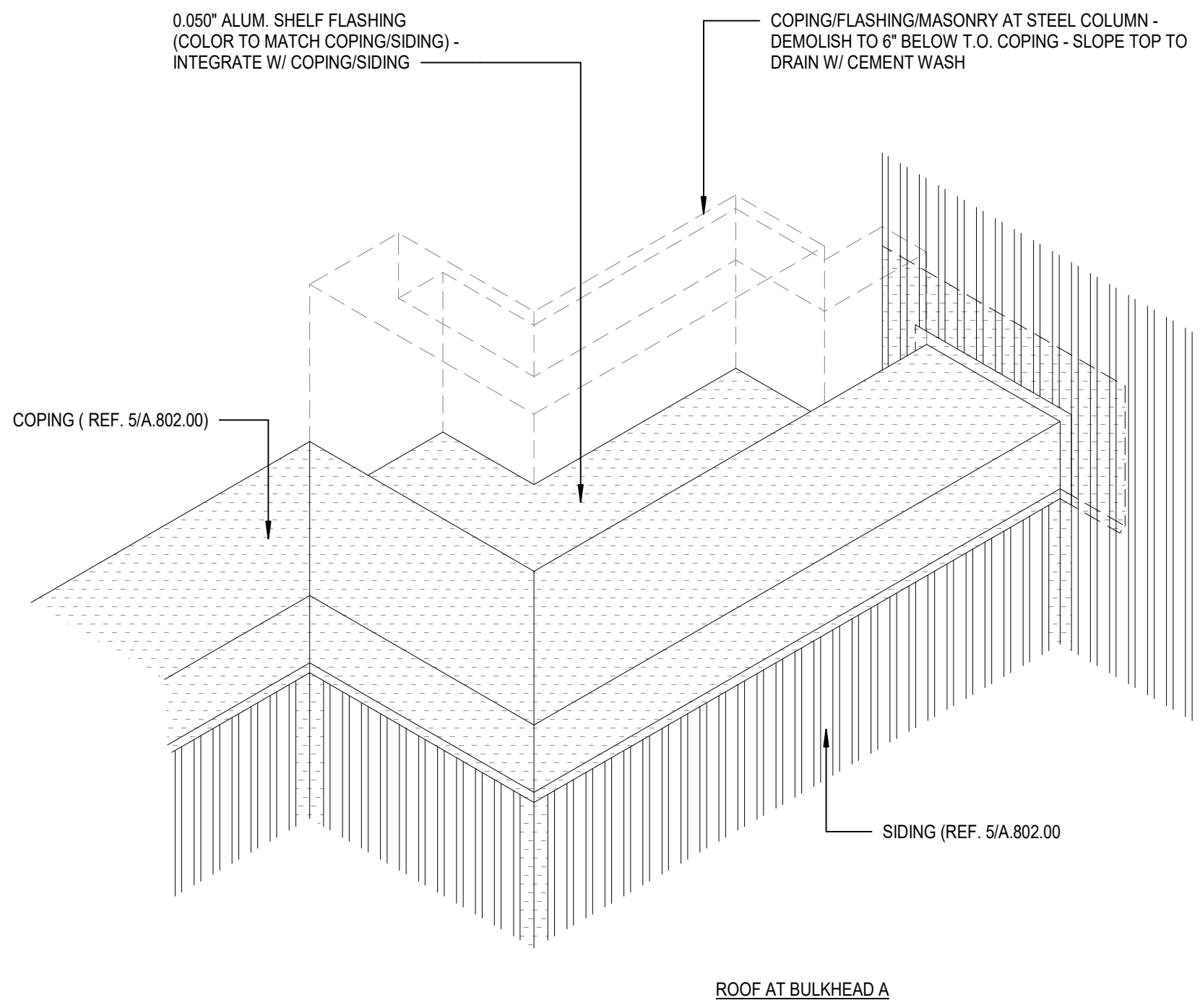
6 SECTION THROUGH CONNECTOR ROOF
A.802.00 SCALE: 3" = 1'-0"



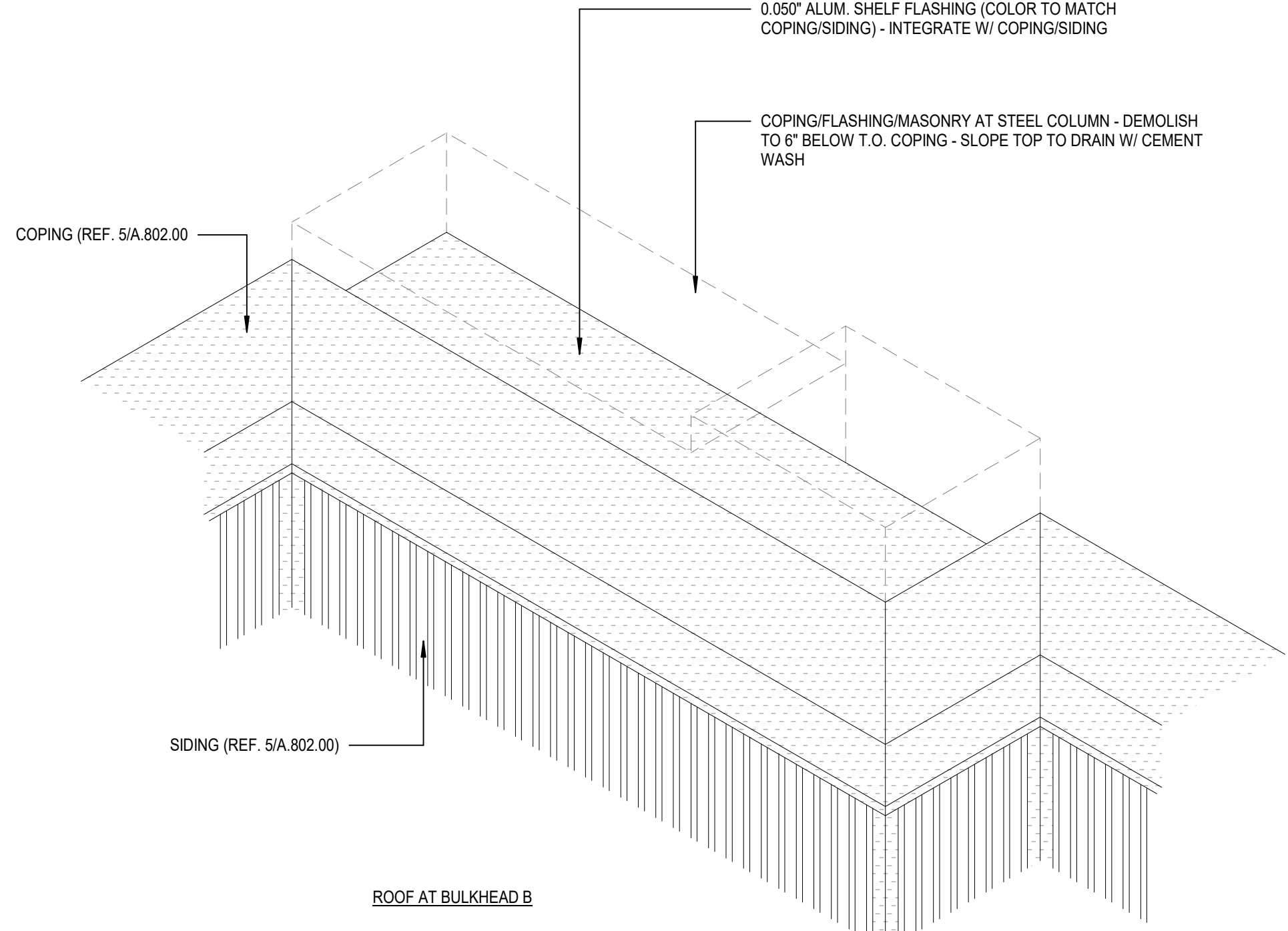
7 SECTION THRU GUTTERED DRIP EDGE
A.802.00 SCALE: 3" = 1'-0"



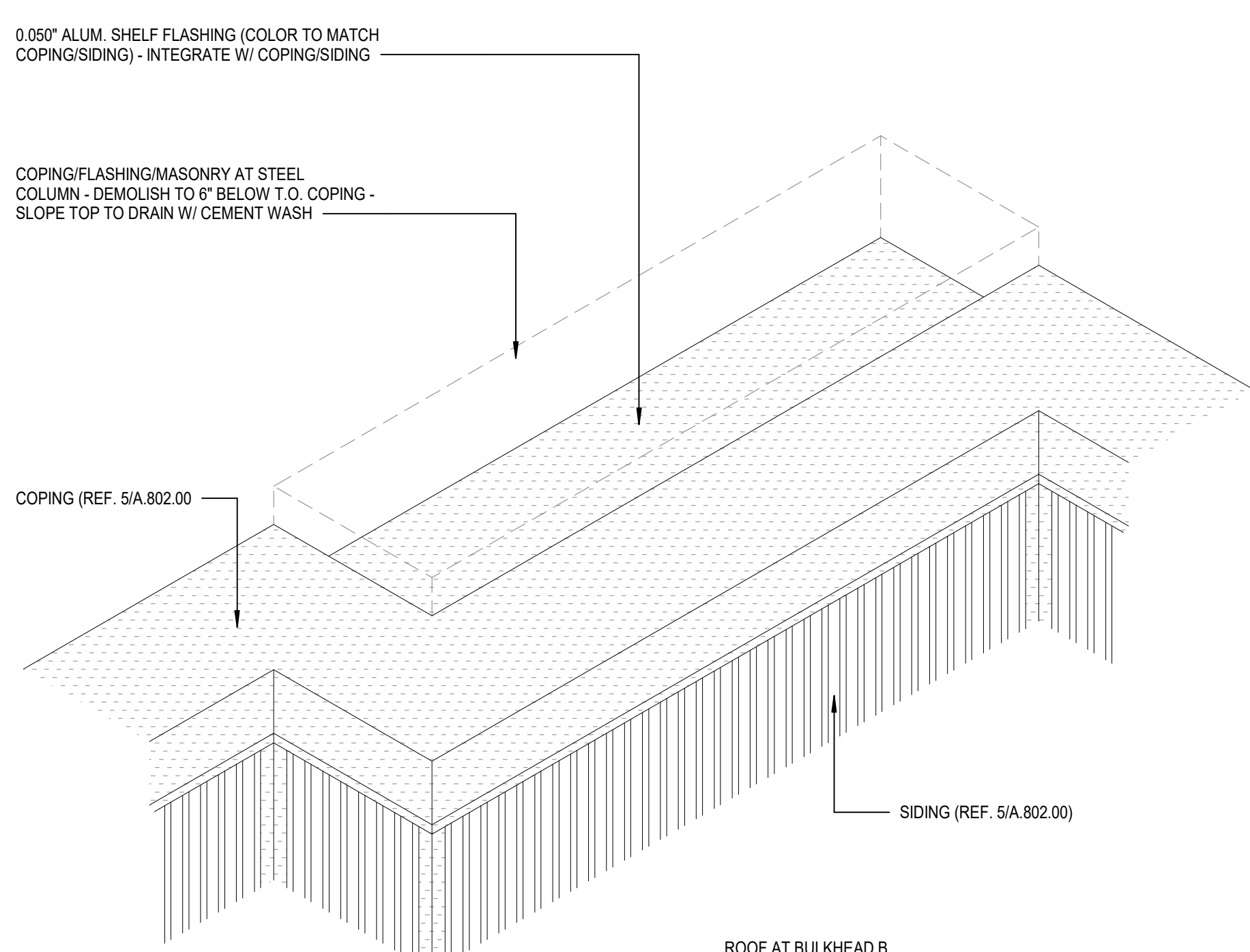
8 SECTION THRU RAISED DRIP EDGE
A.802.00 SCALE: 3" = 1'-0"



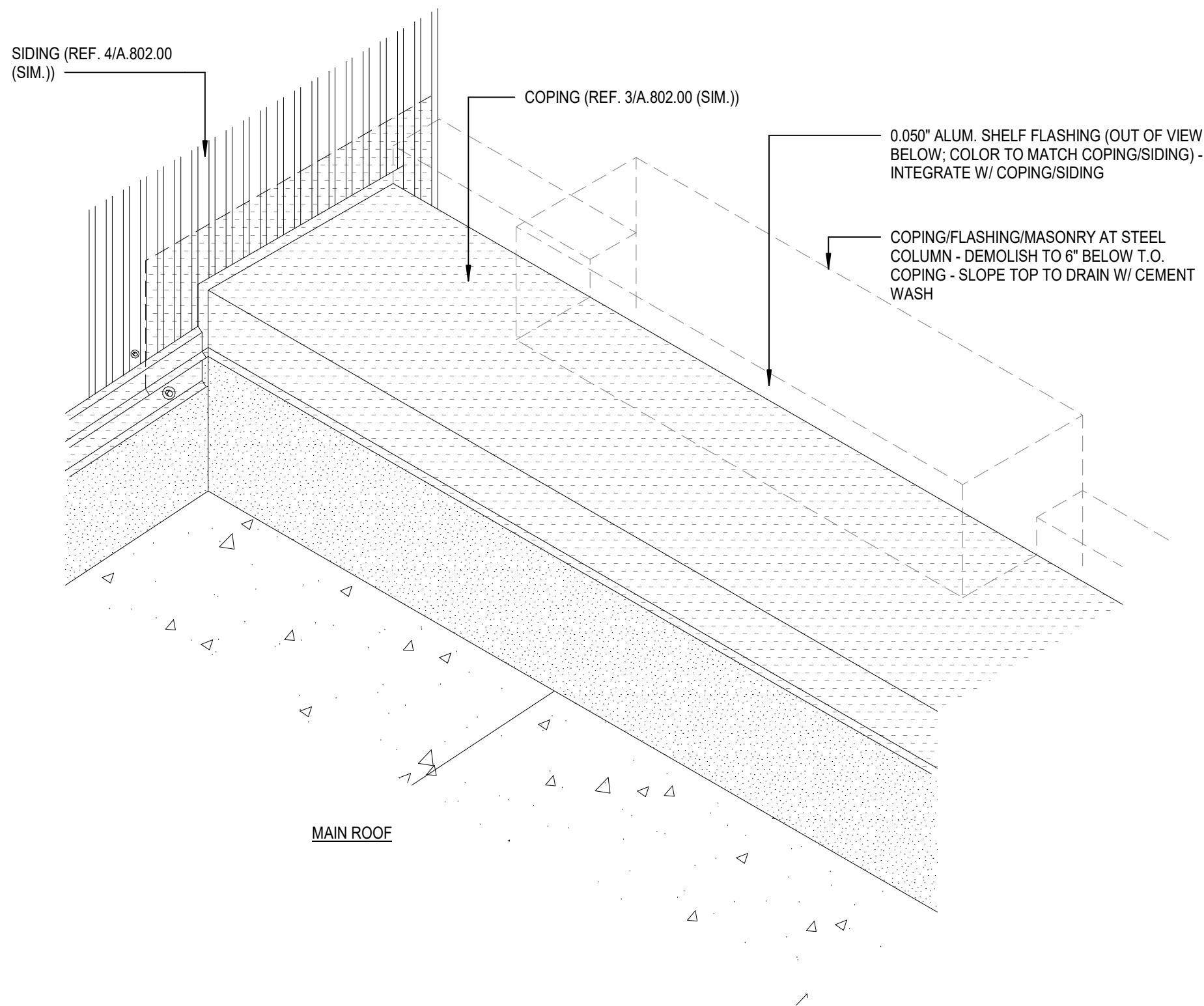
9 FLASHING AT COLUMN (BH A)
A.803.00 SCALE: 3" = 1'-0"



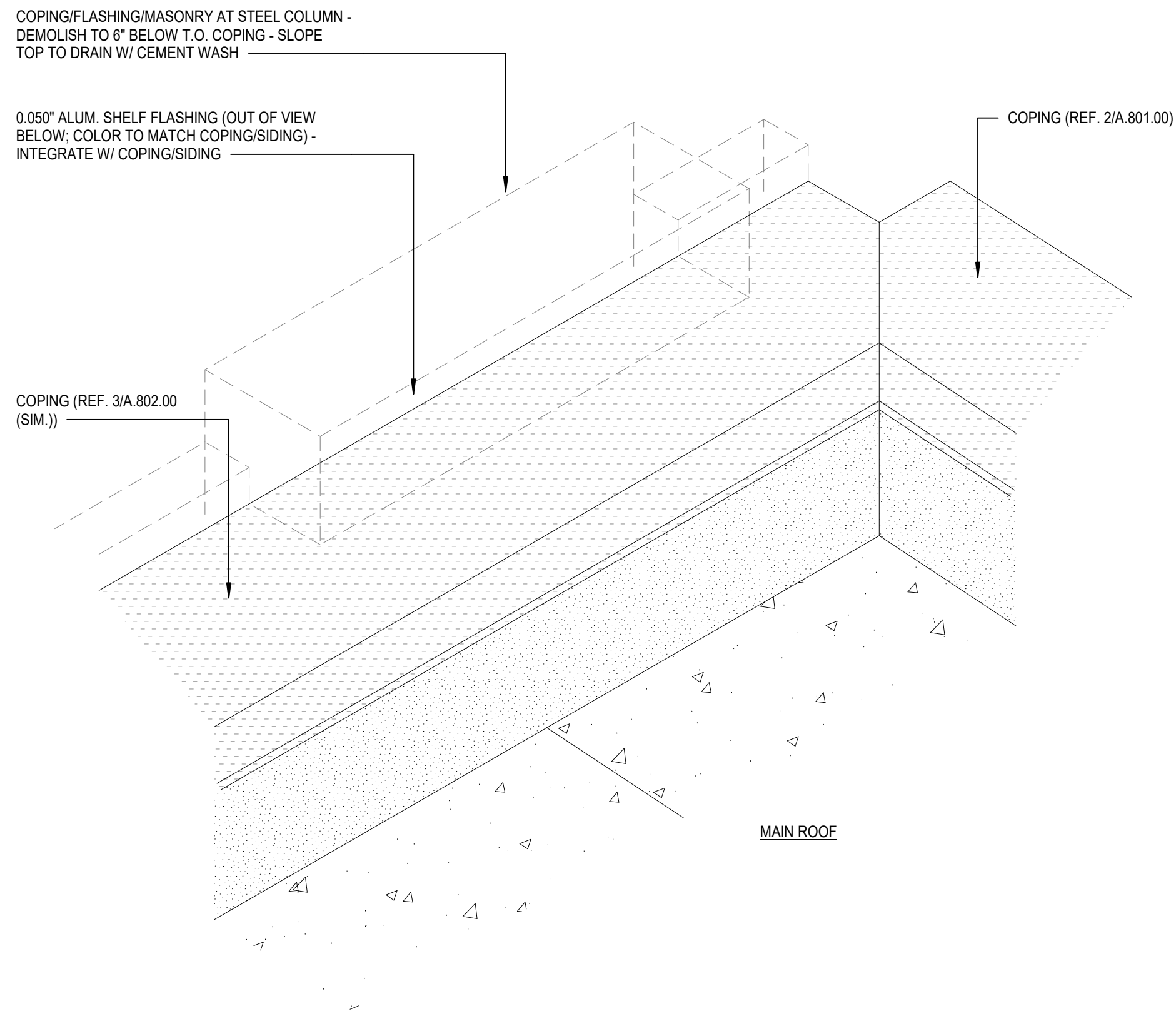
10 FLASHING AT COLUMN (BH B)
A.803.00 SCALE: 3" = 1'-0"



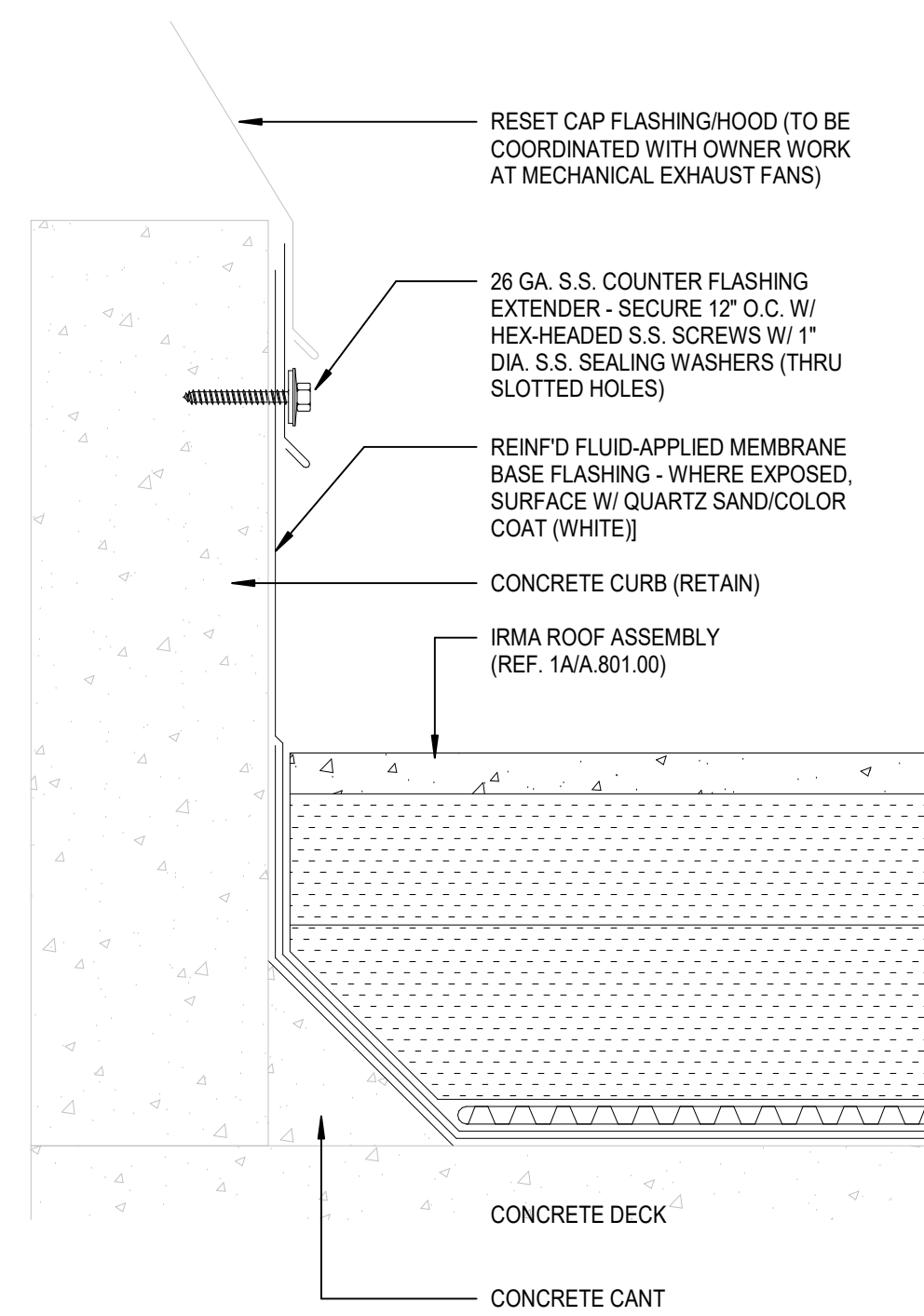
11 FLASHING AT COLUMN (BH B)
A.803.00 SCALE: 3" = 1'-0"



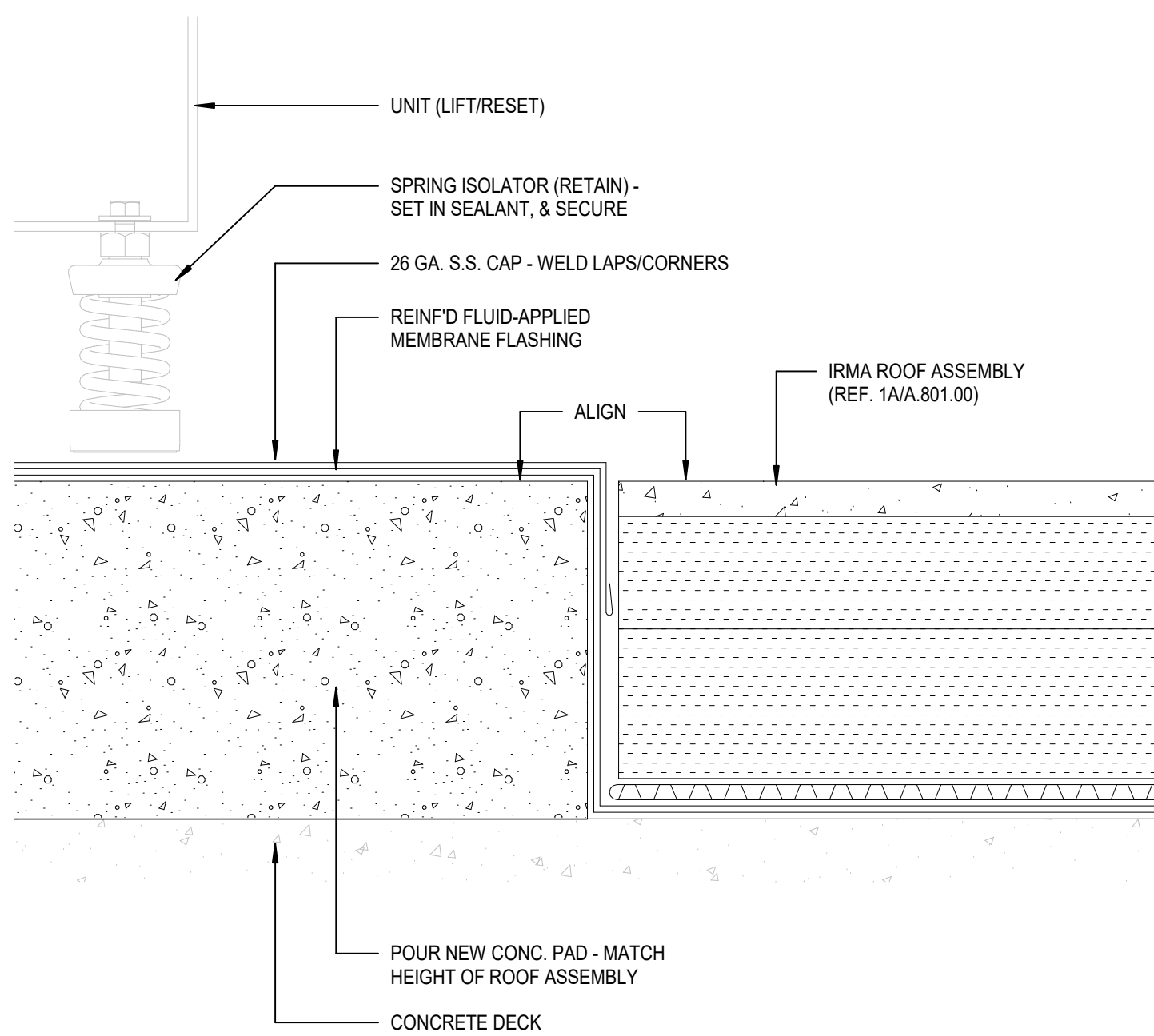
12 FLASHING AT COLUMN (MAIN ROOF)
A.803.00 SCALE: 3" = 1'-0"



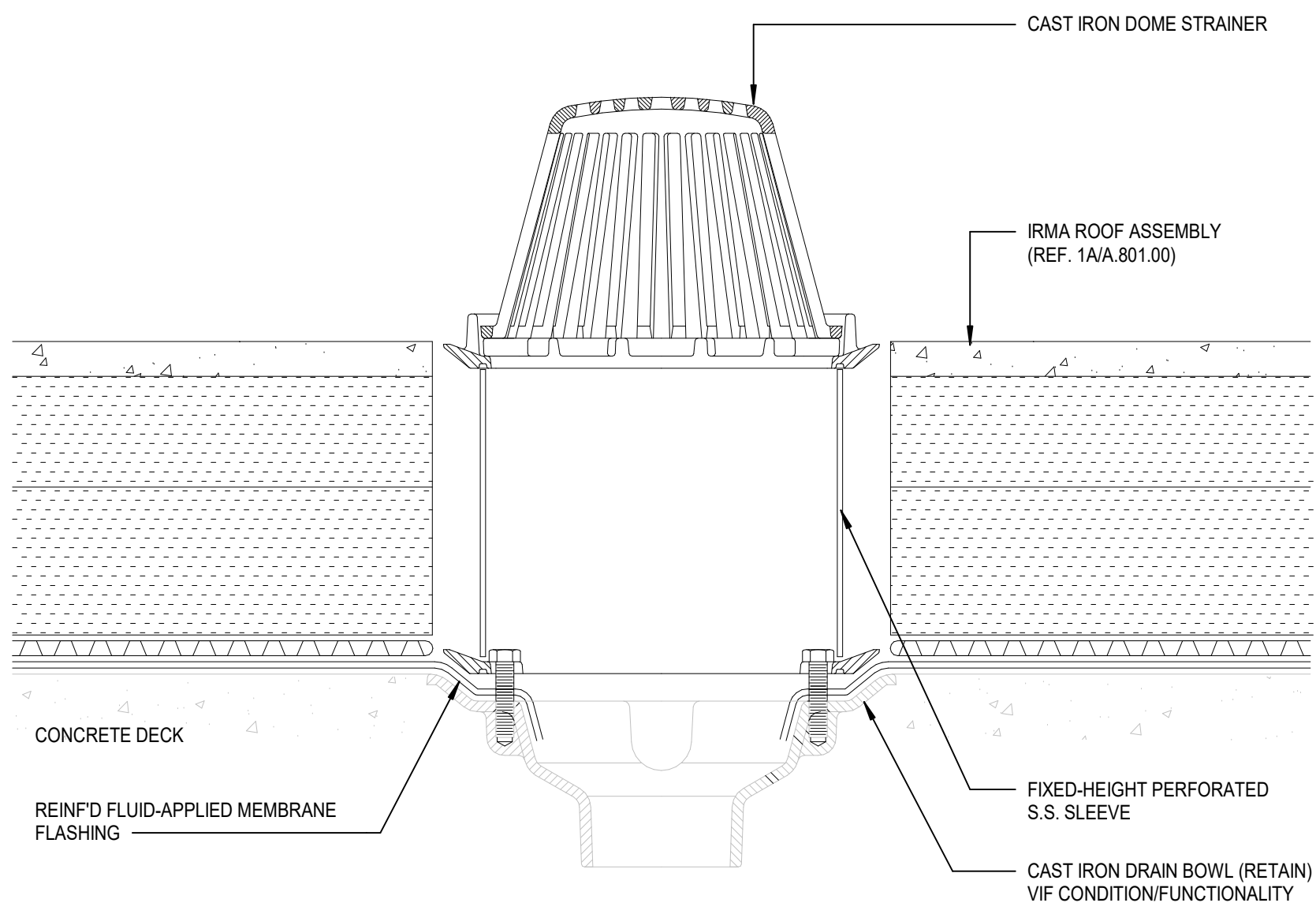
13 FLASHING AT COLUMN (MAIN ROOF)
A.803.00 SCALE: 3" = 1'-0"



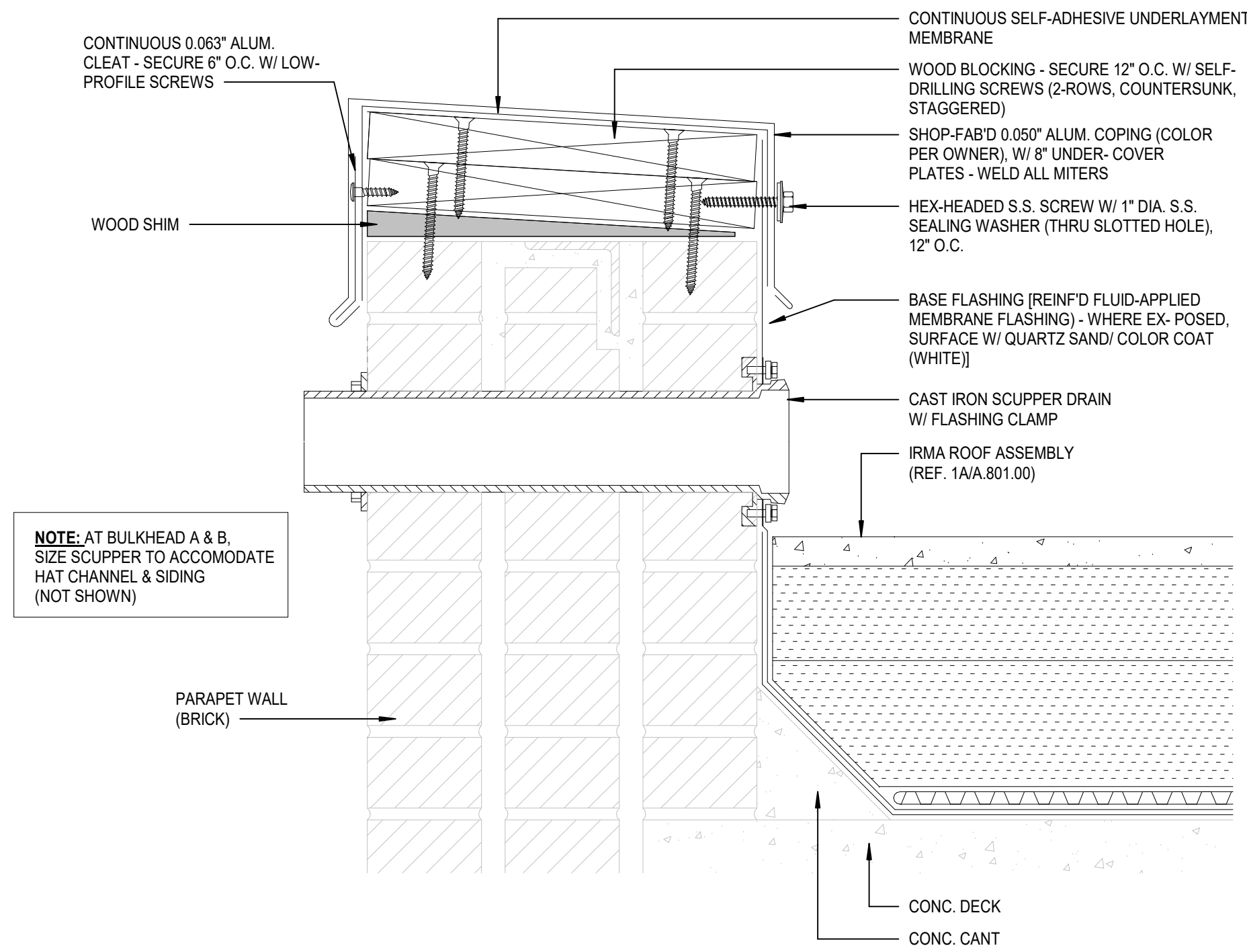
14 FLASHING AT CONCRETE CURB
A.803.00 SCALE: 3" = 1'-0"



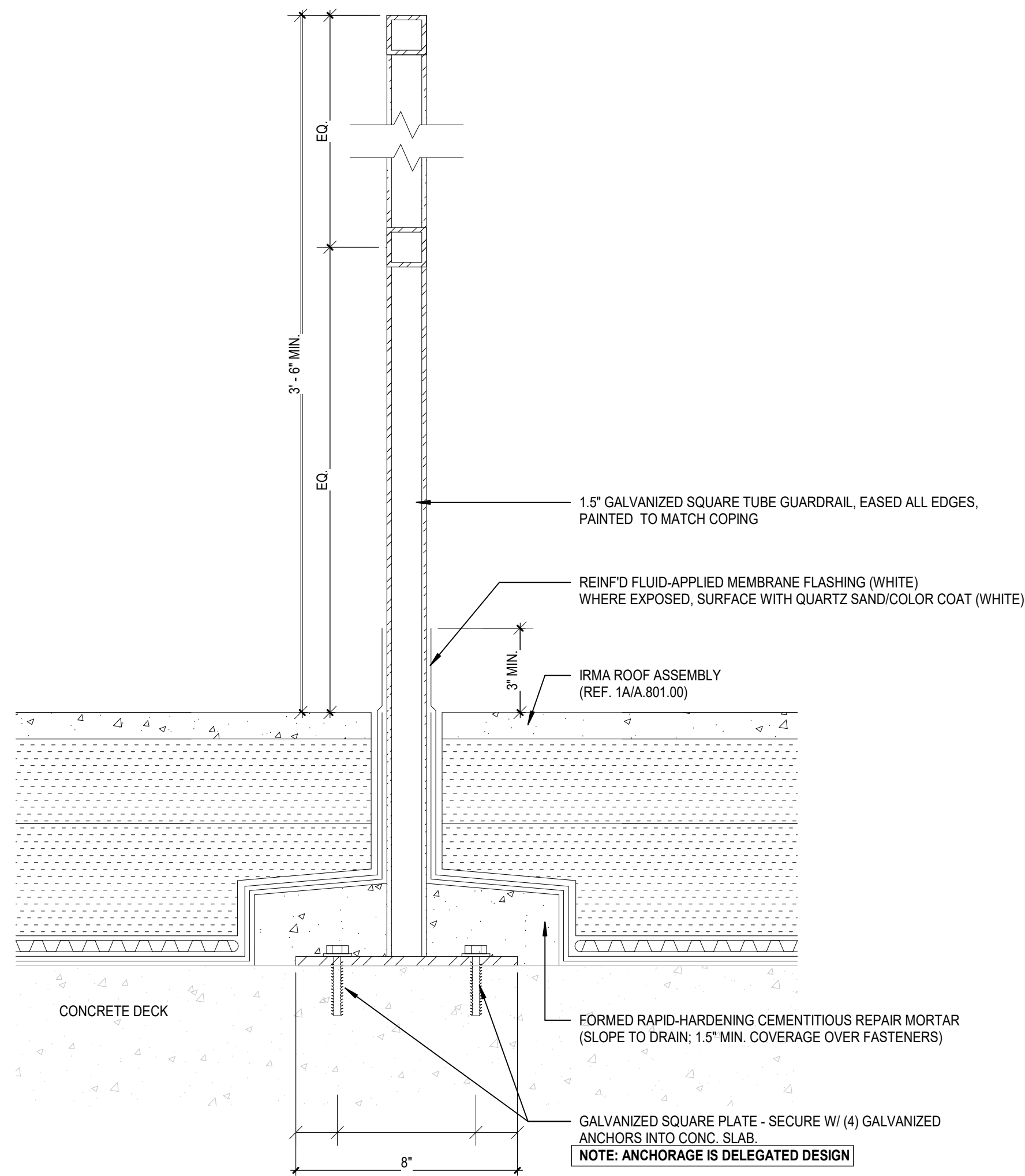
15 FLASHING AT CONCRETE PAD
A.804.00 SCALE: 3" = 1'-0"



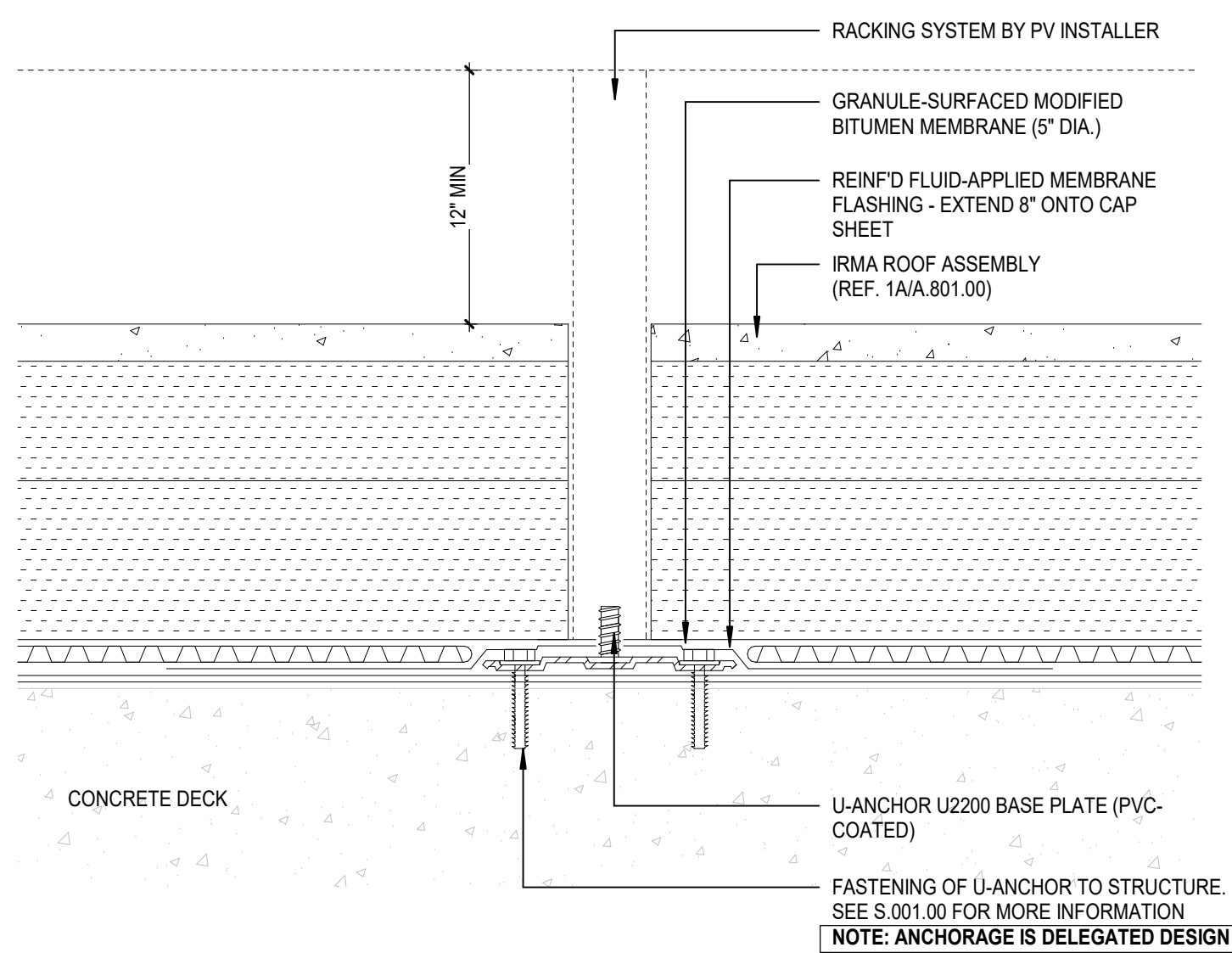
16 FLASHING AT ROOF DRAIN
A.804.00 SCALE: 3" = 1'-0"



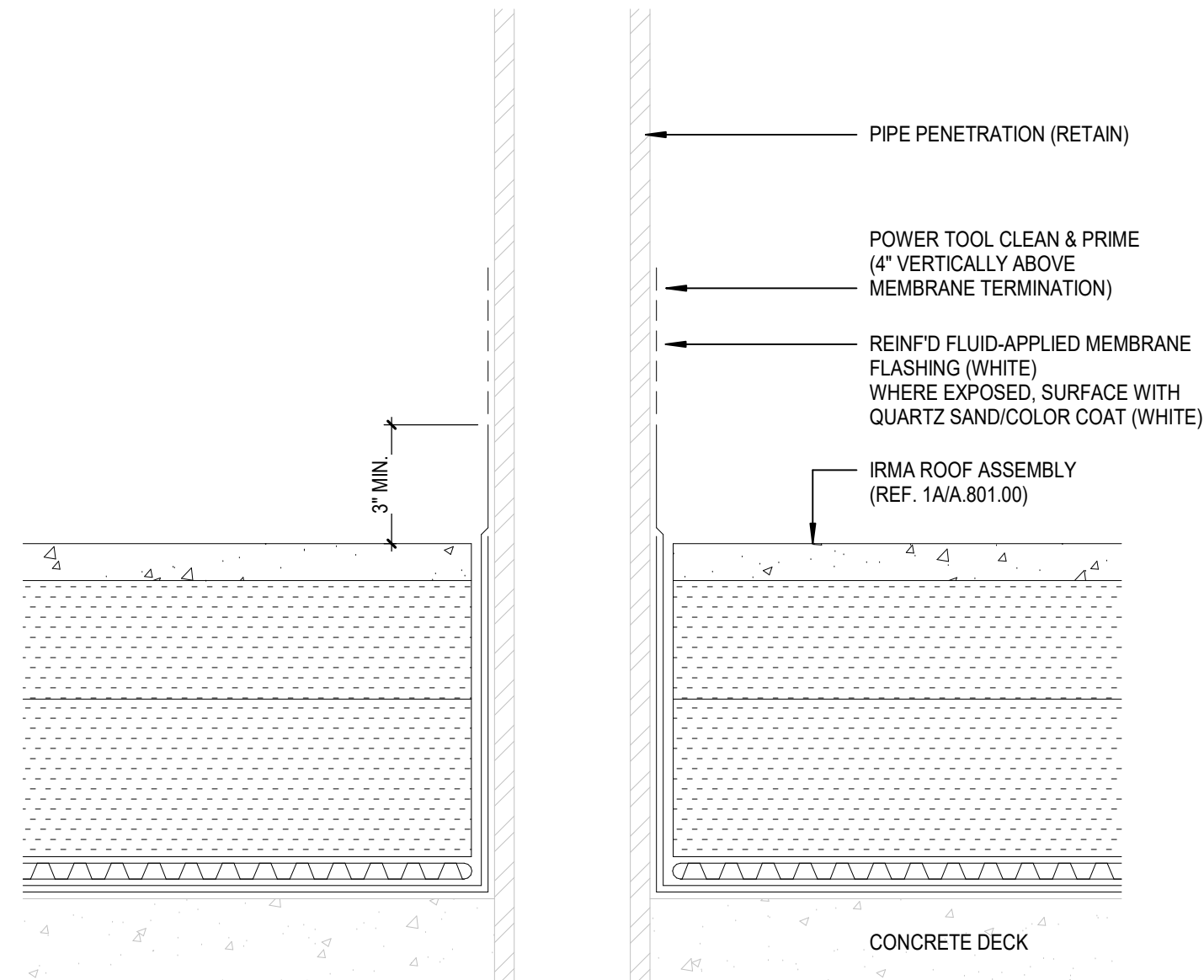
17 FLASHING AT SCUPPER
A.804.00 SCALE: 3" = 1'-0"



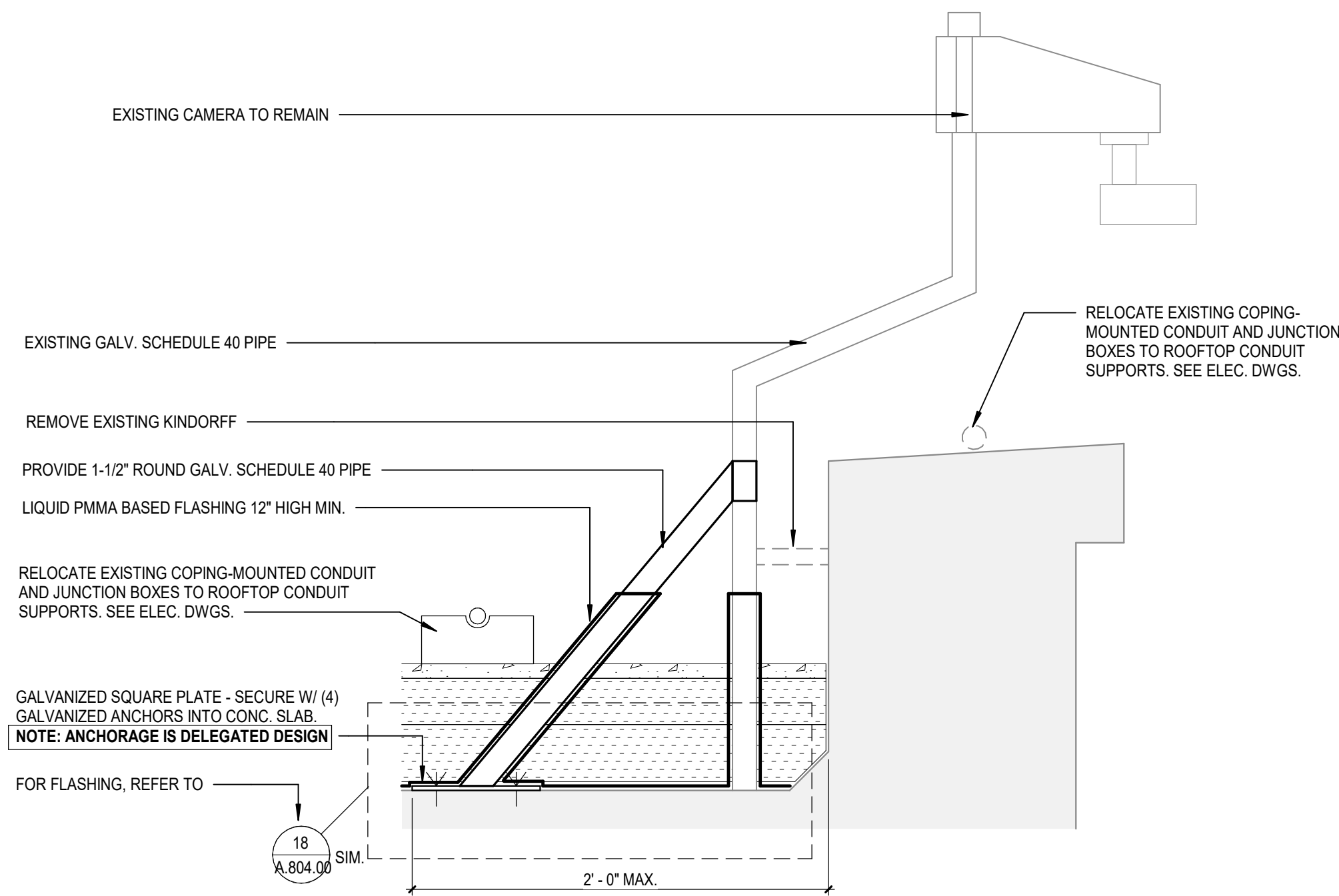
18 FLASHING AT SAFETY RAIL POST - DELEGATED ANCHORAGE
A.804.00 SCALE: 3" = 1'-0"



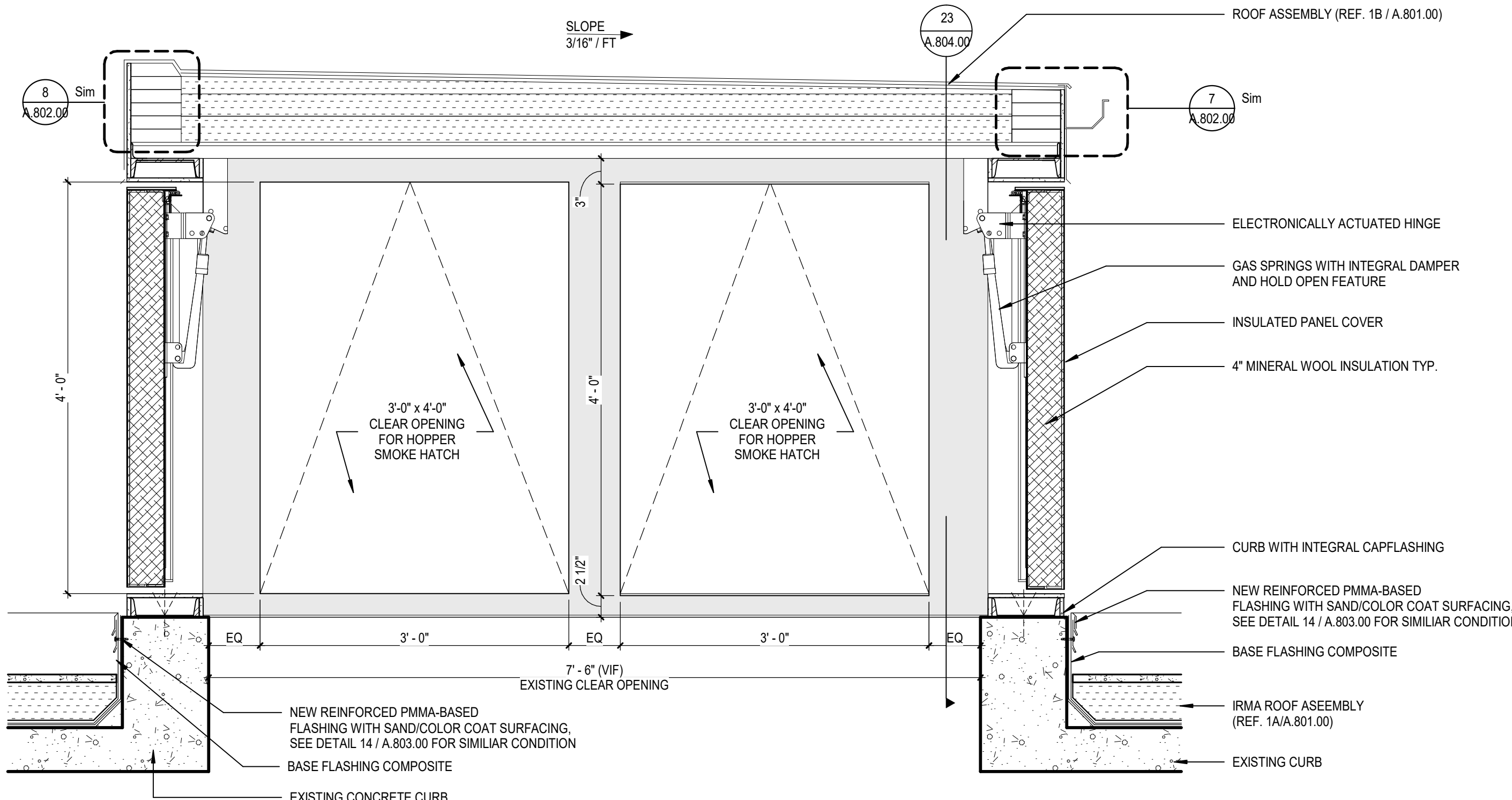
20 FLASHING AT PV ANCHOR PLATE - DELEGATED ANCHORAGE
A.804.00 SCALE: 3" = 1'-0"



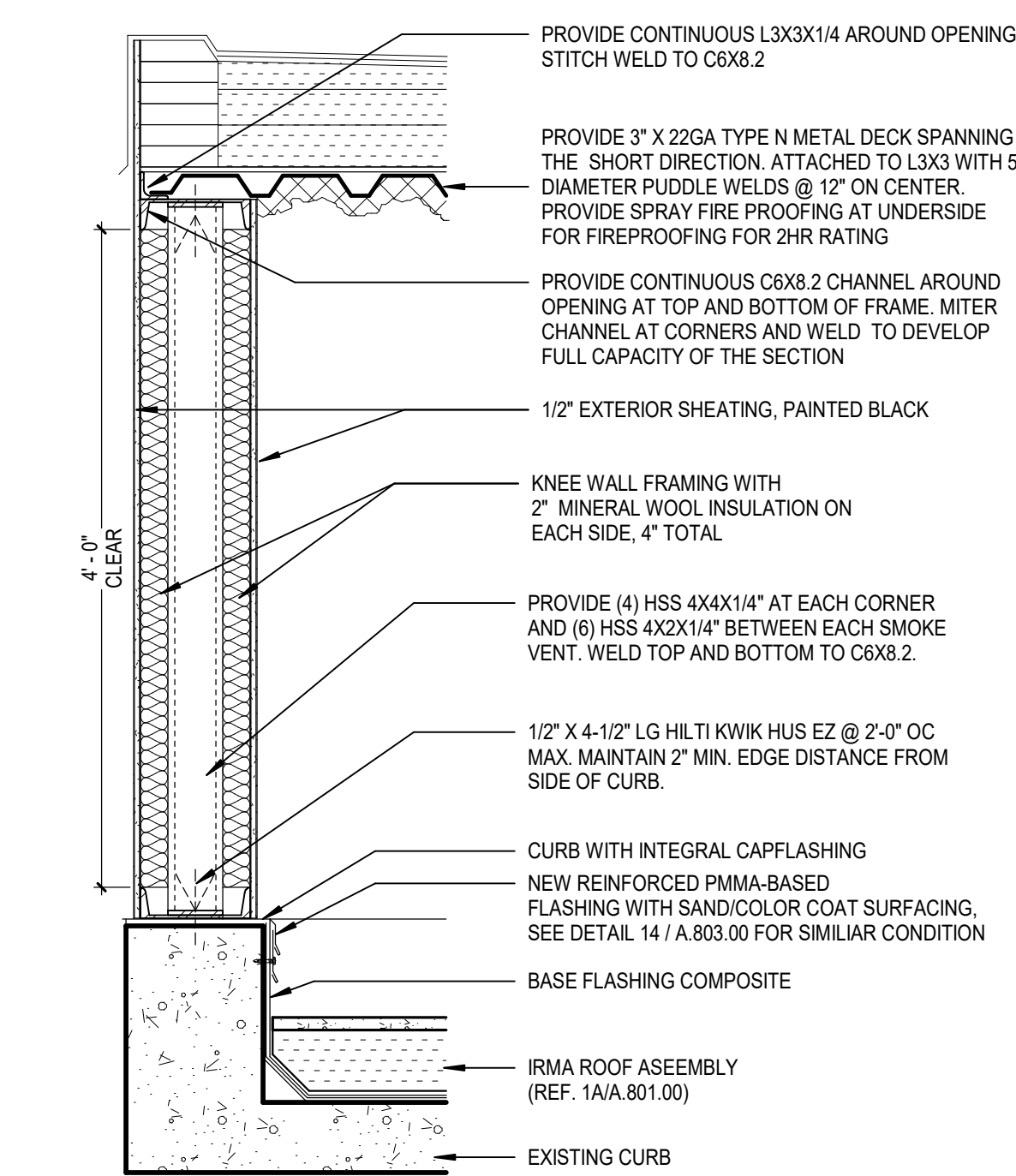
19 FLASHING AT PIPE PENETRATION
A.804.00 SCALE: 3" = 1'-0"



21 EXISTING SECURITY CAMERA
A.804.00 SCALE: 1 1/2" = 1'-0"



22 SMOKE VENT SHORT SECTION
A.804.00 SCALE: 1" = 1'-0"



23 SMOKE VENT FRAMING
A.804.00 SCALE: 1" = 1'-0"

BUILDING DEPARTMENT NOTES

909.3 SPECIAL INSPECTION AND TEST REQUIREMENTS.
SMOKE CONTROL SYSTEMS SUBJECT TO THE PROVISIONS OF SECTION 909 SHALL UNDERGO SPECIAL INSPECTIONS AND TESTS SUFFICIENT TO VERIFY THE PROPER COMMISSIONING OF THE SMOKE CONTROL DESIGN IN ITS FINAL INSTALLED CONDITION. THE DESIGN SUBMISSION ACCOMPANYING THE CONSTRUCTION DOCUMENTS SHALL CLEARLY DETAIL PROCEDURES AND METHODS TO BE USED AND THE DEVICES, FLOW MEASUREMENT, AND OTHER ITEMS SUBJECT TO SUCH INSPECTIONS AND TESTS. SUCH COMMISSIONING SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICE AND, WHERE POSSIBLE, BASED ON PUBLISHED STANDARDS FOR THE PARTICULAR TESTING INVOLVED.

909.3.1 PERIODIC TESTING.
FULL TESTING OF SMOKE CONTROL SYSTEMS IN ACCORDANCE WITH SECTIONS 909.18 THROUGH 909.18.7 SHALL BE CONDUCTED AT FIVE-YEAR INTERVALS BY AN INSPECTOR QUALIFIED IN ACCORDANCE WITH SECTION 909.18.8.2. TEST REPORTS SHALL INCLUDE ALL INFORMATION REQUIRED BY SECTION 909.18.8.3 AND SHALL BE COMPARED AGAINST THE BASELINE SPECIAL INSPECTION REPORT.

410.3.7 STAGE VENTILATION.
EMERGENCY VENTILATION SHALL BE PROVIDED FOR STAGES LARGER THAN 1,000 SQUARE FEET (93 M²) IN FLOOR AREA, OR WITH A STAGE HEIGHT GREATER THAN 40 FEET (12.192 MM). SUCH VENTILATION SHALL COMPLY WITH SECTION 410.3.7.1 OR 410.3.7.2.

410.3.7.1 ROOF VENTS.
TWO OR MORE VENTS CONSTRUCTED TO OPEN AUTOMATICALLY BY APPROVED HEAT-ACTIVATED DEVICES AND WITH AN AGGREGATE CLEAR OPENING AREA OF NOT LESS THAN 5 PERCENT OF THE AREA OF THE STAGE SHALL BE LOCATED NEAR THE CENTER AND ABOVE THE HIGHEST PART OF THE STAGE AREA. SUPPLEMENTAL MEANS SHALL BE PROVIDED FOR MANUAL OPERATION OF THE VENTILATOR. CURBS SHALL BE PROVIDED AS REQUIRED FOR SKYLIGHTS IN SECTION 2610.2. VENTS SHALL BE LABELED.

PER PUBLIC ASSEMBLY FILED UNDET ALT #104634665.

2,316 SF = STAGE (PERFORMANCE AREA) NET AREA

115.8 SF = REQUIRED AGGREGATE CLEAR OPENINGS

12 SF = SIZE PER VENT (3 FT X 4 FT)

120.0 SF = PROVIDED AGGREGATE CLEAR OPENINGS

STRUCTURAL GENERAL NOTES

- DESIGN CRITERIA**
1. ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THESE DRAWINGS, SPECIFICATIONS, AND THE CODES, RULES AND REGULATIONS OF THE 2022 NEW YORK CITY BUILDING CODE, HEREINAFTER REFERRED TO AS THE BUILDING CODE.
2. MATERIAL SPECIFIC DESIGN STANDARDS LISTED IN THESE GENERAL NOTES ARE THE VERSION REFERENCED BY THE BUILDING CODE. IF NOT REFERENCED BY THE BUILDING CODE, USE THE LATEST EDITION APPROVED BY THE AUTHORITY HAVING JURISDICTION ON THE DATE OF THE PERMIT ISSUANCE.
3. RISK CATEGORY III
4. SUPERIMPOSED DESIGN DEAD LOADS
ROOFS (NOT INCLUDING PV PANELS) 34 PSF
PV PANELS 5 PSF
5. DESIGN LIVE LOADS
ROOF LIVE LOAD 20 PSF
6. SNOW LOADS
GROUND SNOW LOAD, P_g 25 PSF
FLAT-ROOF SNOW LOAD, P_f 19 PSF
MINIMUM SNOW LOAD, P_m 22 PSF
FINAL DESIGN SNOW LOAD 22 PSF + DRIFT
SNOW EXPOSURE FACTOR, C_e 1.0
THERMAL FACTOR, C_t 1.0
SNOW LOAD IMPORTANCE FACTOR, I_s 1.10
RAIN-ON-SNOW SURCHARGE 0 PSF
DRIFT LOADS SEE LOADING DIAGRAM
7. WIND LOADS
BASIC DESIGN WIND SPEED (3-SEC GUST), V 127 MPH
ALLOWABLE STRESS DESIGN WIND SPEED, V_{ASD} 88 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC FACTOR, K_{zt} 1.0
AIR DENSITY FACTOR, K_e 0.0
INTERNAL PRESSURE COEFFICIENT, GCF +/- 0.18
COMPONENTS AND CLADDING DESIGNED BY REGISTERED DESIGN PROFESSIONAL IN ACCORDANCE WITH ASCE 7-16
8. SEISMIC LOADS
SITE LATITUDE 40° 44' 50" N
SITE LONGITUDE 73° 59' 22" W
SITE CLASS D
MAPPED SPECTRAL RESPONSE ACCELERATIONS $S_s = 0.290$
 $S_1 = 0.080$
DESIGN SPECTRAL RESPONSE ACCELERATIONS $S_{DS} = 0.303$
 $S_{D1} = 0.096$
SEISMIC DESIGN CATEGORY B
IMPORTANCE FACTOR, I_h 1.25
- EXEMPT FROM LATERAL FORCE-RESISTING SYSTEM ANALYSIS PER SECTION 806.3 OF THE NEW YORK STATE EXISTING BUILDING CODE: THE BUILDING ALTERATIONS DO NOT INCREASE THE DEMAND CAPACITY RATIO OF ANY EXISTING LATERAL FORCE-RESISTING STRUCTURAL ELEMENT BY MORE THAN 10%.

9. RAIN INTENSITY 3.2 INCHES/HOUR
- GENERAL**

1. THE DRAWINGS REPRESENT THE FINISHED STRUCTURE, NOT THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE RESEARCH, DESIGN, SAFETY, ADEQUACY, AND INSPECTION OF ERECTION BRACING, SHORING, GUYING, TEMPORARY SUPPORTS, ETC. IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS AND METHODS, SEQUENCES OF CONSTRUCTION, OR CONSTRUCTION TECHNIQUES USED TO PERFORM THE WORK. OBSERVATION VISITS TO THE SITE WILL NOT INVOLVE REVIEW OF THESE ITEMS.
3. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PROGRAM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON, NOR ISSUE DIRECTION, AS TO SAFETY PRECAUTIONS AND PROGRAMS. OBSERVATION VISITS TO THE SITE WILL NOT INVOLVE REVIEW OF THESE ITEMS.
4. CONTRACTOR IS TO ESTABLISH AND VERIFY OPENINGS AND INSERTS FOR ITEMS TO BE INSTALLED BY OTHER TRADES PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND CONSTRUCTION.
5. CONSTRUCTION MATERIAL AND EQUIPMENT LOADS PLACED ON THE STRUCTURE DURING THE CONSTRUCTION PROCESS SHALL NOT EXCEED THE DESIGN LIVE LOAD OF THE STRUCTURE NOTED IN THESE DRAWINGS. THE ENGINEER SHALL NOT BE RESPONSIBLE TO INVESTIGATE, NOR APPROVE, THE STRUCTURE FOR CONSTRUCTION MATERIAL OR EQUIPMENT LOADING. ERECTION OR CONSTRUCTION LOADS ARE NOT TO BE APPLIED UNTIL PROPER STRUCTURAL FRAMING CONNECTIONS ARE MADE, AND ALL TEMPORARY BRACING IS IN PLACE. THE CONTRACTOR SHALL DESIGN AND PROVIDE TEMPORARY BRACING OF THE STRUCTURE WHERE NECESSARY FOR CONSTRUCTION LOADS.
6. DETAILS THAT ARE NOTED AS "TYPICAL" OR "TYP" ON DETAIL TITLES ARE TO BE APPLIED TO THE PROJECT CONSTRUCTION AS GENERAL CONSTRUCTION METHODS UNLESS NOTED OTHERWISE. THESE DETAILS ARE NOT CUT AT ALL LOCATIONS WHERE THEY OCCUR, AND THEY MAY NOT BE CUT AT ALL WHERE NO SPECIFIC DETAILS ARE SHOWN. CONSTRUCTION SHALL CONFORM TO SIMILAR CONDITIONS ELSEWHERE ON THE PROJECT, SUBJECT TO APPROVAL OF THE ENGINEER.
7. DO NOT SCALE DRAWINGS. CONTRACTOR IS TO VERIFY ALL DIMENSIONS RELATIVE TO ARCHITECTURAL OR OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
8. WHERE DISCREPANCIES OCCUR BETWEEN GENERAL NOTES, PLANS, DETAILS, AND SPECIFICATIONS, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN, UNLESS APPROVED OTHERWISE BY THE ENGINEER IN WRITING PRIOR TO CONSTRUCTION.
9. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND SPECIFICATIONS. THE CONTRACTOR SHALL ESTABLISH AND VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERT ANCHORS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK. DO NOT PENETRATE ANY STRUCTURAL ELEMENTS (BEAMS, COLUMNS, WALLS, SLABS, STEEL DECKS, ETC.) WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.
10. IF THE ENGINEER'S SEAL AND SIGNATURE ARE NOT AFFIXED TO THESE DRAWINGS, THESE DRAWINGS ARE INTENDED FOR PRELIMINARY PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.
11. STRUCTURAL JOINT DIMENSIONS SHOWN ON PLANS AND DETAILS (EXPANSION, SEISMIC SEPARATION, ETC.) INDICATE THE MINIMUM CLEAR DISTANCE REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS AND INFORMATION.
12. ALLOW [10] BUSINESS DAYS FOR PROCESSING SHOP DRAWINGS AND SUBMITTALS AFTER RECEIPT. ALLOW [5] BUSINESS DAYS FOR RESPONDING TO REQUEST FOR INFORMATION (RFIs) PROVIDE [5] BUSINESS DAYS NOTICE FOR STRUCTURAL OBSERVATIONS.

EXISTING CONDITIONS

1. CONTRACTOR IS TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BIDDING. ALL WORK AND MATERIALS NECESSARY TO INSTALL NEW WORK IN EXISTING BUILDING(S) SHALL BE INCLUDED.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AND SHALL CONTACT THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BEFORE PROCEEDING. NOTIFY ENGINEER IMMEDIATELY IF EXISTING CONDITIONS DO NOT MATCH, OR SEEM IN CONFLICT WITH, INFORMATION SHOWN ON DRAWINGS.
3. DIMENSIONS INDICATED ON PLAN AS FIELD VERIFY, OR "FV," ARE DIMENSIONS THAT MAY BE REQUIRED FOR FABRICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF DIMENSIONS IN THE FIELD NECESSARY FOR FABRICATION OF MEMBERS AND PRIOR TO SUBMISSION OF SHOP DRAWINGS.
4. CONTRACTOR TO PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT TO REMAIN FOR DEMOLITION OR CONSTRUCTION OPERATIONS PERFORMED UNDER THIS CONTRACT.
5. THE SEQUENCE OF CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TEMPORARY GUYS, BRACING, AND OTHER SUPPORTS AS NEEDED TO SAFELY RESIST ALL GRAVITY AND LATERAL LOADS TO WHICH THE EXISTING OR PROPOSED STRUCTURE MAY BE SUBJECTED, INCLUDING LOADS FROM ERECTION EQUIPMENT AND ERECTION OPERATIONS, AND WIND OR SEISMIC FORCES COMPARABLE IN INTENSITY FOR WHICH THE STRUCTURE IS DESIGNED. LOAD VERIFICATION OF EXISTING MEMBERS TO RECEIVE TEMPORARY SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S ENGINEER.
6. ALL ERECTION AND CONSTRUCTION PROCEDURES SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE CODES AND ORDINANCES.
7. ALL FRAMING CONNECTIONS TO EXISTING STRUCTURE SHALL BE FIELD VERIFIED PRIOR TO SHOP DRAWING PRODUCTION AND FABRICATION. FIELD VERIFIED DIMENSIONS SHALL BE INCLUDED ON FIRST SHOP DRAWING SUBMITTAL AND NOTED AS SUCH.
8. CONTRACTOR SHALL LOCATE REBAR IN EXIST. CONSTRUCTION PRIOR TO DRILLING OF HOLES AND SHALL TAKE CARE NOT TO DAMAGE EXIST. BARS IF DAMAGE TO EXIST. REBAR OCCURS DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING THE DAMAGE. REPAIR PROCEDURES NOT DETAILED IN THE CONTRACT DOCUMENTS WILL REQUIRE PREPARATION BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND MUST BE APPROVED BY THE ENGINEER.

EXISTING DOCUMENTATION

1. THE FOLLOWING DOCUMENTS WERE USED TO REPRESENT EXISTING STRUCTURE IN THE CONSTRUCTION DOCUMENTS. NOT ALL ELEMENTS AND INFORMATION HAVE BEEN PROVIDED. COPIES OF THE EXISTING DRAWINGS MAY BE AVAILABLE AT THE CONTRACTOR'S REQUEST.
- a. ARCHITECTURAL DRAWINGS DATED OCTOBER 08, 1956 BY DEVOUNG MOSCOWITZ & ROSENBERG ARCHITECTS.
- b. STRUCTURAL DRAWINGS DATED OCTOBER 08, 1956 BY SEVERUD-ELSTAD-KRUEGER STRUCTURAL ENGINEERS

STRUCTURAL STEEL

1. FABRICATOR QUALIFICATIONS: FABRICATOR SHALL BE ALSO CERTIFIED OR AN APPROVED FABRICATOR IN ACCORDANCE WITH THE BUILDING CODE AND APPROVED BY THE A.H.U. IN LIEU OF THE PREVIOUS. FABRICATOR SHALL INCLUDE IN THEIR BID THE SERVICES OF A SPECIAL INSPECTOR TO PROVIDE IN-PLANT INSPECTION/TESTING SERVICES FOR WORK COMPLETED ON THE FABRICATOR'S PREMISES TO MEET BUILDING CODE REQUIREMENTS. AT THE COMPLETION OF WORK, FABRICATOR SHALL SUBMIT A "CERTIFICATE OF COMPLIANCE" TO THE ARCHITECT AND A.H.U. STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH APPROVED CONSTRUCTION DOCUMENTS.
2. STRUCTURAL STEEL, SHAPES AND CONNECTING COMPONENTS SHALL CONFORM TO THE FOLLOWING MATERIAL SPECIFICATIONS UNO:
FOLLOWING MATERIAL SPECIFICATIONS:
STEEL SHAPES AND PLATES ASTM A36, $F_y = 36$ KSI
HIGH STRENGTH STRUCTURAL BOLTS ASTM F1554, GRADE A325N
MACHINE BOLTS ASTM A307
THREADED ROODS ASTM A36
WELDING ELECTRODES E70XX
3. CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE BUILDING SYSTEM AT ALL TIMES DURING THE ERECTION PROCESS. ELEMENTS HAVE BEEN DESIGNED FOR THE FINAL COMPLETED CONDITION AND HAVE NOT BEEN INVESTIGATED FOR TEMPORARY LOADING DURING CONSTRUCTION. INVESTIGATION OF THE STRUCTURAL ELEMENTS FOR ADEQUACY DURING THE STEEL ERECTION AND CONSTRUCTION PROCESS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR TO PROVIDE TEMPORARY SUPPORTS AS REQUIRED TO MAINTAIN STABILITY.
4. BEAMS WITH BASE, CAP OR END PLATES SHALL HAVE SQUARE CUT OR MILLED ENDS.
5. UNO, ALL STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. ALL DAMAGED GALVANIZING SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A780. STAINLESS AND WEATHERING STEELS, WHERE SPECIFIED, ARE EXEMPT FROM THIS REQUIREMENT.
6. WHERE CONNECTIONS ARE NOTED TO BE SLIP CRITICAL (EXAMPLE: A325-SC), BOLTS SHALL BE TIGHTENED TO THE MINIMUM PRETENSION FOR FULLY TIGHTENED BOLTS BY ONE OF THE AISC APPROVED METHODS. SLIP-CRITICAL BOLTS SHALL HAVE CLASS "A" FAYING SURFACES.
7. ALL BOLTS (HIGH STRENGTH, ANCHOR BOLTS, EXPANSION BOLTS, ADHESIVE ANCHORS, ETC.) SHALL BE INSTALLED WITH NUTS AND WASHERS. NUTS AND WASHERS FOR HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A563 AND TO ASTM F438, RESPECTIVELY.
8. WELDING PROCEDURES, ELECTRODES, AND WELDER QUALIFICATIONS SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE D1.1, AISC STANDARDS, AND LOCAL CODE REQUIREMENTS.
9. ALL WELDS SHOWN ON THE DRAWINGS SHALL BE SHOP WELDS. UNO, WHERE SHOWN, FIELD WELDING SHALL BE USED. CONTRACTOR MAY SUBSTITUTE FIELD WELDS FOR SHOP WELDS AT THEIR DISCRETION. SHOP DRAWINGS SHALL CLEARLY NOTE ALL WELDING USING AWS A2.4 SYMBOLS.
10. COORDINATE WITH ALL OTHER TRADES WHICH STEEL INTERACTS.

POST-INSTALLED ANCHORS

1. UNO, THE FOLLOWING APPLIES TO ALL POST-INSTALLED ANCHORAGE INTO HARDENED CONCRETE OR MASONRY WHICH INCLUDES TYPES SUCH AS EXPANSION, WEDGE, SLEEVE, ADHESIVE / EPOXY, SHOT-PIV, SCREW AND UNDERCUT.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED.
3. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER OF RECORD PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING, DAMAGED OR MISPLACED CAST-IN-PLACE ANCHORS.
4. CARE SHALL BE GIVEN TO AVOID CONFLICTS WITH EXISTING REBAR OR EMBEDDED CONDUIT WHEN DRILLING HOLES. HOLES SHALL BE DRILLED AND CLEANED PER THE MANUFACTURER'S INSTRUCTIONS.
5. MAINTAIN A MINIMUM OF 2 INCHES FROM EXISTING REINFORCEMENT, CONDUIT, POST-TENSIONING (WHERE OCCURS), ETC. USE NON-DESTRUCTIVE TESTING TO LOCATE PRIOR TO DRILLING, CORING OR SHOOTING PINS INTO THE EXISTING CONCRETE OR MASONRY FOR INSTALLATION DEEPER THAN 3 INCHES USE GROUND PENETRATING RADAR OR X-RAY METHODS.
6. ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS AND ALL APPLICABLE ICC-ES REPORTS, INCLUDING, BUT NOT LIMITED TO, ALL ANCHOR SPACINGS, EMBEDMENTS AND EDGE DISTANCES.
7. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE AND INSTALLATION TEMPERATURES.
8. EMBEDMENT REFERS TO THE FINAL INSTALLED EFFECTIVE DEPTH "H". ALL ANCHORS SHALL HAVE EMBEDMENT NOTED OR EMBEDMENT AS RECOMMENDED BY MANUFACTURER WHERE NO EMBEDMENT IS SHOWN. REQUIRED ANCHOR HOLE DEPTH FOR INSTALLATION MAY BE DEEPER.
9. IF THE FULL ANCHOR EMBEDMENT DEPTH, SPACING OR EDGE DISTANCE CANNOT BE ACHIEVED, NOTIFY THE ENGINEER.
10. STEEL ANCHORING ELEMENTS SHALL BE THE SIZE AND GRADE SHOWN ON THE DRAWINGS AND MUST BE CLEAN, DRY AND FREE OF ANY OIL CONTAMINANTS. DO NOT INCREASE OR DECREASE SIZE OF ANCHOR WITHOUT APPROVAL OF ENGINEER.
11. ALL PERSONNEL INSTALLING POST-INSTALLED ANCHORS SHALL BE TRAINED BY THE MANUFACTURER ON PROPER INSTALLATION TECHNIQUE. TRAINING DOCUMENTATION FROM THE MANUFACTURER SHALL BE AVAILABLE UPON REQUEST.
12. INSTALLATION OF ADHESIVE ANCHORS IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH AAI AND IN ACCORDANCE WITH A318. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.
13. EXPANSION BOLTS IN CONCRETE SHALL BE ONE OF THE FOLLOWING:
a. HILTI HIT-122 CONCRETE ANCHORS (ICC ESR-4266)
14. SCREW ANCHORS IN CONCRETE SHALL BE ONE OF THE FOLLOWING:
a. HILTI HUS-EZ SCREW ANCHORS (ICC ESR-3027)
15. ADHESIVE ANCHORS IN CONCRETE SHALL BE ONE OF THE FOLLOWING, AS INDICATED:
a. HILTI HIT-HY 200 V3 ADHESIVE ANCHORING SYSTEM WITH SAFESET (ESR-4866) (FAST CURE APPLICATIONS)
b. HILTI RE-500 V3 ADHESIVE ANCHORING SYSTEM (ICC ESR-3814)
c. HILTI RE-100 ADHESIVE ANCHORING SYSTEM (ICC ESR-3828) (STANDARD CURE APPLICATIONS)

16. ANCHORS ARE NOT TO BE INSTALLED UNTIL CONCRETE OR GROUT HAS REACHED IT'S DESIGN STRENGTH. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE WITH A MIN. AGE OF 21 DAYS.
17. USE INSTALLATION PROCEDURES FOR CRACKED CONCRETE CONDITIONS. DO NOT CORE DRILL FOR ANCHOR HOLES WITHOUT ENGINEER APPROVAL.
18. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT DRY INTERIOR LOCATIONS AND STAINLESS-STEEL TYPE 304 OR 316 AT EXTERIOR / DAMP INTERIOR LOCATIONS. ANCHORS SHALL BE CLEAN AND FREE OF DEBONDING SUBSTANCES.
19. PATCH ABANDONED HOLES AND SPALLS USING NON-SHRINK GROUT AND REPAIR FINISHES AS REQUIRED. ANCHORS PENETRATING THROUGH WATERPROOFING OR VAPOR MEMBRANES SHALL BE SEALED OR FLASHED.
20. ADHESIVE / EPOXY ANCHORS ON THIS PROJECT ARE NOT DESIGNED TO SUPPORT OR INTENDED TO RESIST SUSTAINED TENSION LOADS.

SUBMITTALS

1. THE FOLLOWING ITEMS ARE REQUIRED STRUCTURAL SUBMITTALS AS DESCRIBED IN THE SPECIFICATIONS.
- a. STRUCTURAL STEEL FRAMING
2. THE FOLLOWING ITEMS ARE DELEGATED DESIGN (DEFERRED) SUBMITTALS PER THE BUILDING CODE) AS DESCRIBED IN THE SPECIFICATIONS.
- a. STRUCTURAL STEEL CONNECTIONS
b. METAL FABRICATIONS
c. METAL PAN STAIRS
d. PIPE AND TUBE RAILINGS, INCLUDING ATTACHMENT TO THE EXISTING STRUCTURE
e. GUARDRAILS, INCLUDING ATTACHMENT TO THE EXISTING STRUCTURE
f. LOADERS AND THEIR SUPPORTS, INCLUDING ATTACHMENT TO THE EXISTING STRUCTURE
g. PV PANEL AND PV COMPONENT ATTACHMENT TO EXISTING STRUCTURE INCLUDING PV ARRAY SUPPORT FRAMING
3. DELEGATED DESIGN SUBMITTAL CALCULATIONS AND/OR SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY THE ENGINEER RESPONSIBLE FOR THEIR PREPARATION AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW WITH THE SHOP DRAWING SUBMITTAL. ONCE REVIEWED, CONTRACTOR SHALL FORWARD TO THE A.H.U. FOR APPROVAL. FABRICATION AND INSTALLATION OF THE DELEGATED DESIGN SUBMITTAL ITEMS SHALL NOT OCCUR UNTIL APPROVAL OF THE A.H.U. IS RECEIVED.

STATEMENT OF SPECIAL INSPECTIONS

1. IN ACCORDANCE WITH THE BUILDING CODE, SECTION 1704, THE OWNER'S REPRESENTATIVE SHALL EMPLOY ONE OR MORE QUALIFIED SPECIAL INSPECTORS AND/OR TESTING AGENCIES TO PERFORM STRUCTURAL TESTS AND SPECIAL INSPECTIONS ON THE TYPES OF WORK LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS.
2. THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS SHALL BE RESPONSIBLE FOR DEFINING THE ACTIVITIES OF THE INSPECTORS, FOR CERTIFYING THE QUALIFICATIONS OF THE INSPECTORS WITH THE A.H.U. AND TO ATTEND THE PRE-CONSTRUCTION MEETING TO DEFINE THEIR SCOPE OF SERVICES AND THE TESTING OR TEST PROCEDURES THAT ARE REQUIRED AS OUTLINED IN THE BUILDING CODE.
3. THE INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO VERIFY CONFORMANCE WITH THE APPROVED CONTRACT DOCUMENTS.
4. THE INSPECTOR SHALL FURNISH DAILY INSPECTION REPORTS ON THE WORK TO THE OWNER'S REPRESENTATIVE, A.H.U. AND ENGINEER. ALL DISCREPANCIES SHALL BE REPORTED TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND, IF UNCORRECTED, TO THE ENGINEER AND THE A.H.U.
5. THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS SHALL COMPLETE, SIGN AND SEAL A FINAL REPORT CERTIFYING THAT TO THE BEST OF THEIR KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED CONTRACT DOCUMENTS.
6. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE A.H.U. AND SHALL NOT BE CONSIDERED TO RELIEVE THE OWNER OR AUTHORIZED AGENT FROM REQUESTING THE INSPECTIONS REQUIRED BY IBC SECTION 1710.

STATEMENT OF SPECIAL INSPECTIONS (continued)

7. STEEL CONSTRUCTION: SPECIAL INSPECTIONS FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360-16. PROVIDE INSPECTION PER IBC SECTION 1704.2.5 FOR STRUCTURAL LOADING-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP. THESE INSPECTIONS SHALL BE AT CONTRACTOR'S EXPENSE IF THE FABRICATOR IS NOT AN APPROVED FABRICATOR PER SECTION 1704.2.5.1.
8. WELDING: WELDING INSPECTION SHALL BE IN COMPLIANCE WITH AWS D1.1, THE BASIS FOR WELDING INSPECTOR QUALIFICATIONS SHALL BE AWS D1.1. PROVIDE SPECIAL INSPECTION IN ACCORDANCE WITH AISC 360-16 TABLE N5.4.1 THROUGH TABLE N5.4.3.
9. STEEL DETAILING: AN INSPECTION OF THE STEEL FRAME SHALL BE PERFORMED TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS.
10. HIGH STRENGTH BOLTING: INSTALLATION OF HIGH STRENGTH BOLTS SHALL BE PERIODICALLY INSPECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. HIGH STRENGTH BOLTING: PROVIDE SPECIAL INSPECTION IN ACCORDANCE WITH AISC 360-16 TABLE N5.6.1 THROUGH TABLE N5.6.3.
11. SPRAY-APPLIED FIREPROOFING: PER SECTION 1705.14.
12. MASTIC AND INTUMESCENT FIRE RESISTING COATINGS: PER SECTION 1705.15.
13. FIRE-RESISTANT PENETRATIONS AND JOINTS: PER SECTION 1705.17.
14. SMOKE CONTROL: PER SECTION 1705.18.
15. EXPANSION BOLT, SCREW ANCHOR AND ADHESIVE ANCHORS: INSTALLATION TO VERIFY INSTALLATION IN ACCORDANCE WITH ICC-ES REPORTS NOTED PREVIOUSLY OR APPROVED EQUAL.

AISC 360 — TABLE N5.6.1			
INSPECTION TASKS PRIOR TO BOLTING			
INSPECTION TASKS PRIOR TO BOLTING	QC	QA	
Manufacturer's certifications available for fastener materials	O	P	
Fasteners marked in accordance with ASTM requirements	O	O	
Proper fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O	O	
Proper bolting procedure selected for joint detail	O	O	
Connecting elements, including the appropriate laying surface condition and hole preparation, if specified, meet applicable requirements	O	O	
Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	P	O	
Proper storage provided for bolts, nuts, washers, and other fastener components	O	O	
O - Observe these items on a random basis. Operations need not be delayed pending these inspections.			
P - Perform these tasks for each bolted connection.			

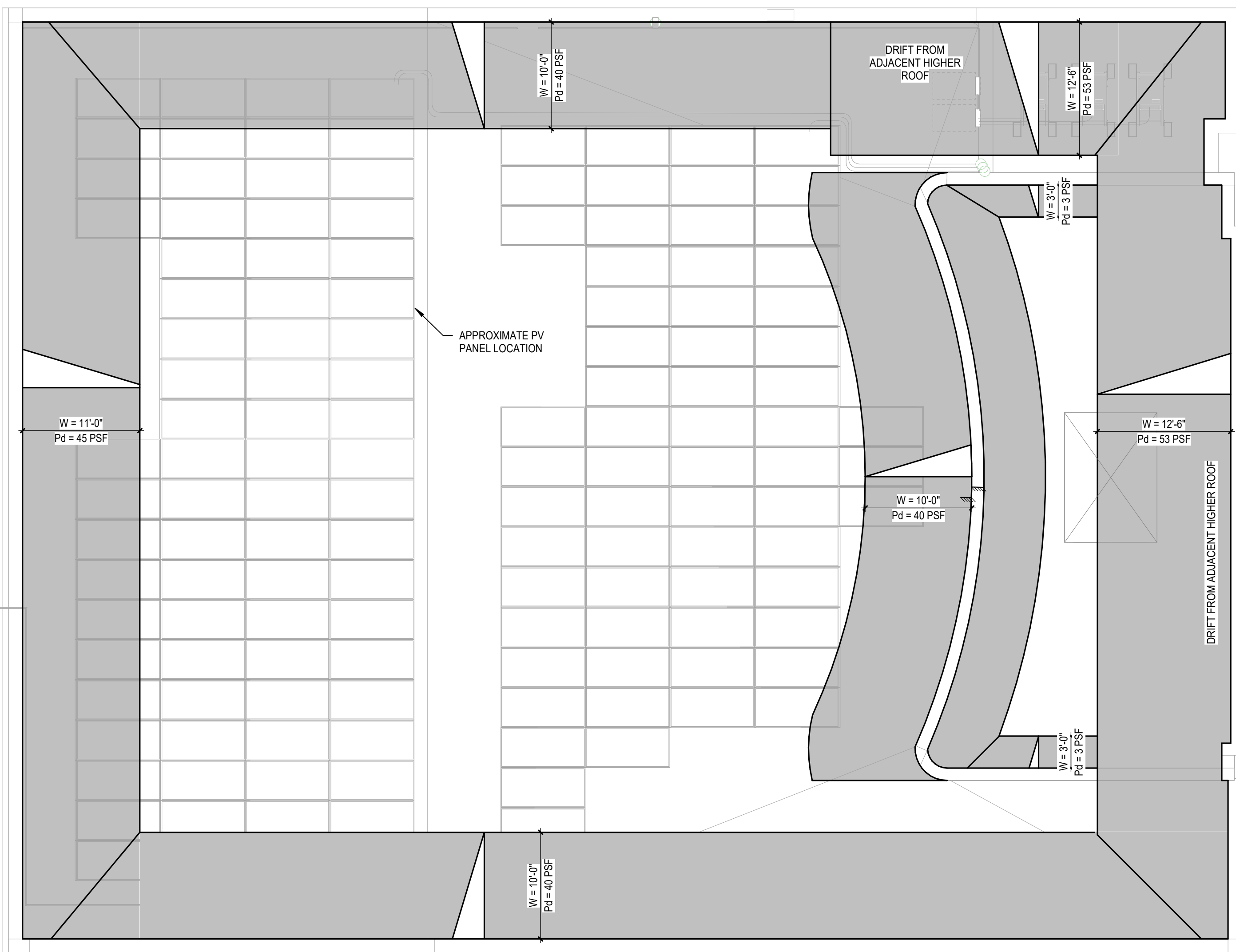
AISC 360 — TABLE N5.6.2			
INSPECTION TASKS DURING BOLTING			
INSPECTION TASKS DURING BOLTING	QC	QA	
Fastener assemblies placed in all holes and washers and nuts are positioned as required	O	O	
Joint brought to the snug-tight condition prior to the pretensioning operation	O	O	
Fastener component not turned by the wrench prevented from rotating	O	O	
Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid joint toward the free edges	O	O	

AISC 360 — TABLE N5.6.3			
INSPECTION TASKS AFTER BOLTING			
INSPECTION TASKS AFTER BOLTING		QC	QA
Document acceptance or rejection of bolted connections		P	P
O - Observe these items on a random basis. Operations need not be delayed pending these inspections.			
P - Perform these tasks for each bolted connection.			

AISC 360 — TABLE N5.4.1			
INSPECTION TASKS PRIOR TO WELDING			
INSPECTION TASKS PRIOR TO WELDING	QC	QA	
Welder qualification records and continuity records	P	O	
Welding procedure specifications (WPS) available	P	P	
Manufacturer certifications for welding consumables available	P	P	
Material identification (type / grade)	O	O	
Welder identification system (if)	O	O	
Fit-up of groove welds (including joint geometry)	O	O	
• Joint preparations			
• Dimensions (alignment, root opening, root face, bevel)			
• Cleanliness (condition of steel surfaces)			
• Tacking (tack weld quality and location)		O	
• Backing type and fit (if applicable)			
Fit-up of CJP groove welds of HSS T-, Y- and K-joints without backing (including joint geometry)	P	O	
• Joint preparations	P	O	
• Dimensions (alignment, root opening, root face, bevel)			
• Cleanliness (condition of steel surfaces)			
• Tacking (tack weld quality and location)			
Configuration and finish of access holes	O	O	
Fit-up of fillet welds	O	O	
• Dimensions (alignment, gaps at root)			
• Cleanliness (condition of steel surfaces)			
• Tacking (tack weld quality and location)			
Check welding equipment	O	—	

AISC 360 — TABLE N5.4.2			
INSPECTION TASKS DURING WELDING			
INSPECTION TASKS DURING WELDING	QC	QA	
Control and handling of welding consumables			
• Packaging	O		O
• Exposure Control			
No welding over cracked tack welds		O	O
Environmental conditions			
• Wind speed within limits	O	O	
• Precipitation and temperature			
WPS Followed			
• Settings on welding equipment			
• Travel Speed			
• Selected welding materials			
• Shielding gas type / flow rate		O	O
• Preheat applied			
• Interpass temperature maintained (min. / max.)			
• Proper position (F, V, H, OH)			
Welding techniques			
• Interpass and final cleaning		O	O
• Each pass within profile limitations			
• Each pass meets quality requirements			
Placement and installation of steel headed stud anchors	P		P
O - Observe these items on a random basis. Operations need not be delayed pending these inspections.			
P - Perform these tasks for each welded joint or member.			

AISC 360 — TABLE N5.4.3			
INSPECTION TASKS AFTER WELDING			
INSPECTION TASKS AFTER WELDING	QC	QA	
Welds cleaned	O	O	
Size, length and location of welds	P	P	
Welds meet visual acceptance criteria	P	P	
• Crack prohibition			
• Weld / base-metal fusion			
• Crater cross section			
• Weld profiles			
• Weld size			
• Undercut	P	P	
• Porosity			
Arc strikes	P	P	
k-area [a]	P	P	
Weld access holes in rolled heavy shapes and built-up heavy shapes [b]	P	P	
Backing removed and weld tabs removed (if required)	P	P	
Repair activities	P	P	
Document acceptance or rejection of welded joint or member	P	P	
No prohibited welds have been added without the approval of the EOR	O	O	
[a] When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 inches (75 mm) of the weld.			
[b] After rolled heavy shapes (see Section A3.1c) and built-up heavy shapes (see Section A3.1d) are welded, visually inspect the weld access hole for cracks.			
O - Observe these items on a random basis. Operations need not be delayed pending these inspections.			
P - Perform these tasks for each welded joint or member.			



NOTES

1. SNOW DRIFT LOADS SHOWN INCLUDE DRIFTING SNOW ONLY AND SHALL BE SUPERIMPOSED OVER THE BALANCED ROOF SNOW, P_g .
2. DRIFT LOADING SHOWN IS WINDWARD OR LEeward DRIFT, WHICHEVER IS GREATER.
3. ALL LOADS SHOWN ARE UNFACTORED LOADS AND SHALL BE COMBINED IN LOAD COMBINATIONS SET FORTH IN ASCE 7-16.



ABBREVIATIONS

(R) Ø	RELOCATED PHASE
A	AMPERE
A/E	ARCHITECT/ENGINEER
AC	ABOVE COUNTER
AF	AMP FRAME (CIRCUIT BREAKER)
AC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AMP	AMPERE
AP	WIRELESS ACCESS POINT
AT	AMP TRIP (CIRCUIT BREAKER OR FUSE)
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO-VIDEO, AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BJ	BONDING JUMPER
BKR	BREAKER
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAS	CASING
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CE	COVER ELEVATION
CEM	CEMENT
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CG	CORNER GUARD
CH	CHANNEL
CJ	CONSTRUCTION JOINT
CK	CIRCUIT
CKT BK	CIRCUIT BREAKER
CL	CIRCUIT LINE
CM	CEILING MOUNTED
CMP	CORRUGATED METAL PIPE
CO	CONDUIT ONLY
COMP	COMPOSITE
COOR	COORDINATE
COORD	COORDINATE
CSK	COUNTERSUNK
CT	CURRENT TRANSFORMER
CTL	CONTROL
CU	COPPER
CVW	COMBINATION WASTE AND VENT
DB	DECIBEL
DC	DIRECT CURRENT
DISC	DISCONNECT
DP	DISTRIBUTION PANELBOARD
DW	DISHWASHER
ECS	EMERGENCY COMMUNICATION SYSTEM
EGB	ELECTRICAL GROUNDING BUSBAR
EMD	ESTIMATED MAXIMUM DEMAND
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EP	EXPLOSION PROOF
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
EW	ELECTRIC WATER COOLER
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FLA	FULL LOAD AMPS
FS	FLOW SWITCH
FSD	FIRE SMOKE DAMPER
G	EQUIPMENT GROUNDING CONDUCTOR
GEN	GENERATOR
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFPE	GROUND FAULT PROTECTION OF EQUIPMENT
GND	EQUIPMENT GROUNDING CONDUCTOR
HH	HANDHOLE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
IC	INTERCOM
IG	ISOLATED GROUND
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CIRCUIT
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LT	LIGHT
LTG	LIGHTING
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRTS	MOTOR RATED TOGGLE SWITCH
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MTS	MAIN TRANSFER SWITCH
N	NEUTRAL
NC	NORMALLY CLOSED
NF	NON-FUSED
NL	NIGHT LIGHT
NO	NORMALLY OPEN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OSKY	OUTSIDE SCREW AND YOKE
P	POLE(S)
PA	PUBLIC ADDRESS
PB	PULL BOX
PH	PHASE
PIV	POST INDICATOR VALVE
PNL	PANEL
PWR	POWER
RCP	REFLECTED CEILING PLAN
RECP	RECEPTACLE
REF	REFERENCE
RESP	RESPONSIVE
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
SWBD	SWITCHBOARD
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TIME CLOCK
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TGBS	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TO	TELECOMMUNICATIONS OUTLET
TR	TELECOMMUNICATIONS ROOM
TS	TAMPER SWITCH
TV	TELEVISION
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WA	TELECOMMUNICATIONS WORK AREA
WG	WIRE GUARD
WP	WEATHER-PROOF (NEMA 3R)
XFMR	TRANSFORMER

SHEET INDEX

E001.00	ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES
E201.00	PARTIAL POWER PLANS
E202.00	ROOF - POWER PLAN
E501.00	ELECTRICAL RISER
E601.00	ELECTRICAL DETAILS
E602.00	ELECTRICAL DETAILS - POWER
E701.00	ELECTRICAL SCHEDULES AND DETAILS
E702.00	BASIS OF DESIGN EQUIPMENT CUTSHEETS

NOTES

GENERAL NOTES

- MODIFICATIONS TO EXISTING POWER DISTRIBUTION EQUIPMENT: MATCH EXISTING MANUFACTURER, SWITCH TYPE, FUSE TYPE, BREAKER TYPE AND KAIC RATING FOR ALL INSTALLED DEVICES.
- EXISTING PANEL DIRECTORIES AT PANELS AFFECTED BY WORK: PROVIDE UPDATED TYPED PANEL DIRECTORY. CONSULT OWNER FOR INPUT ON LABELING OF ALL EXISTING CIRCUITS.
- DEVICES AND LIGHT FIXTURES DENOTED 'ER' ARE EXISTING TO BE RELOCATED. NOTIFY AE IF DEVICES OR FIXTURES ARE DAMAGED.

GENERAL DEMOLITION NOTES

- ITEMS INDICATED ON DEMOLITION PLANS ARE BASED ON AS-BUILT DRAWINGS AND FIELD OBSERVATIONS AND ARE INTENDED TO GIVE THE BIDDER A GENERAL REPRESENTATION OF EXISTING CONDITIONS.
- REMOVE ALL ITEMS SHOWN FULL-TONE OR NOTED ELSEWHERE IN THE DOCUMENTS TO BE REMOVED OR DEMOLISHED. DEMOLISH ADDITIONAL ITEMS NOT SHOWN ON DRAWINGS, BUT WHICH MUST BE REMOVED TO COMPLETE THE PROJECT.
- ITEMS SHOWN HALF-TONE ARE EXISTING TO REMAIN.
- RELOCATE ITEMS DENOTED 'ER'. SEE LIGHTING, POWER AND/OR SPECIAL SYSTEM SHEETS FOR NEW LOCATIONS. 'ER' IS DEFINED AS EXISTING (TO BE) RELOCATED.
- EXISTING CONDUIT MAY REMAIN IF ALL THE FOLLOWING ARE TRUE:
A. IT CAN BE REUSED TO FEED DEVICES INSTALLED UNDER THIS CONTRACT.
B. IT DOES NOT INTERFERE WITH OTHER TRADES.
C. IT WAS ORIGINALLY INSTALLED MEETING SPECIFICATIONS RELATED TO THIS PROJECT.
D. IT WILL NOT BE EXPOSED IN A FINISHED AREA (UNLESS NOTED OTHERWISE).
- PROVIDE ELECTRICAL DEMOLITION ASSOCIATED WITH MECHANICAL EQUIPMENT TO BE REMOVED. IN ADDITION TO DEVICES SHOWN, REFER TO MECHANICAL AND ARCHITECTURAL DEMOLITION SHEETS TO DETERMINE EQUIPMENT TO BE REMOVED.
- MAINTAIN FUNCTIONALITY OF ALL EXISTING LOW VOLTAGE SYSTEMS INCLUDING, BUT NOT LIMITED TO: TELECOM CABLING NETWORKS, INTERCOM, CLOCKS, FIRE ALARM, SAFETY AND SECURITY DURING ALL PHASES OF CONSTRUCTION. PROVIDE TEMPORARY INTERCONNECTIONS AS REQUIRED TO ACCOMMODATE CONSTRUCTION SCHEDULE.

GENERAL SITE PLAN NOTES

- ALL LIGHTING AND POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
- ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISHED GRADE.
- ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.
- PROVIDE TRANSFORMER BASE AT ALL POLE MOUNTED FIXTURES, TAP 2 LEGS OF THREE PHASE FEEDER (CIRCUITS DENOTED), PROVIDE BALLAST FUSES AT TAP, AND PROVIDE BRANCH CIRCUITS TO FIXTURES.

GENERAL SITE DEMOLITION NOTES

- SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
- DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES AND LIGHTING FIXTURES IN DEMOLITION AREAS UNLESS NOTED OTHERWISE.
- COORDINATE AND VERIFY REQUIREMENTS WITH NEW WORK IN AREA.

GENERAL POWER NOTES

- VERIFY ANY NEUTRAL WIRES REQUIRED ON 1Ø OR 3Ø MECHANICAL UNITS FURNISHED UNDER DIVISION 23. IF REQUIRED, PROVIDE NEUTRAL.
- PROVIDE DEDICATED 120-VOLT CIRCUITS TO ALL HVAC BAS CONTROL DEVICES AND PANELS. COORDINATE QUANTITY WITH DIVISION 23. UTILIZE NEAREST SPARE 120-VOLT, 2ØH BREAKER. LABEL TYPED PANEL DIRECTORY ACCORDING TO LOAD BEING SERVED.
- IN ADDITION TO DEVICES SHOWN, SEE SCHEDULE SHEETS FOR CONNECTIONS TO ALL MECHANICAL EQUIPMENT.
- LOCATE SWITCHES FOR CONTROL OF FANS IN TWO-GANG BOX WITH LIGHT SWITCH WHERE APPLICABLE.
- PROVIDE #10AWG CONDUCTORS FOR ALL WARM AIR DRYER CIRCUITS. PROVIDE LOCKOUT DEVICE AT ALL BREAKERS SERVING WARM AIR DRYERS.

GENERAL LIGHTING NOTES

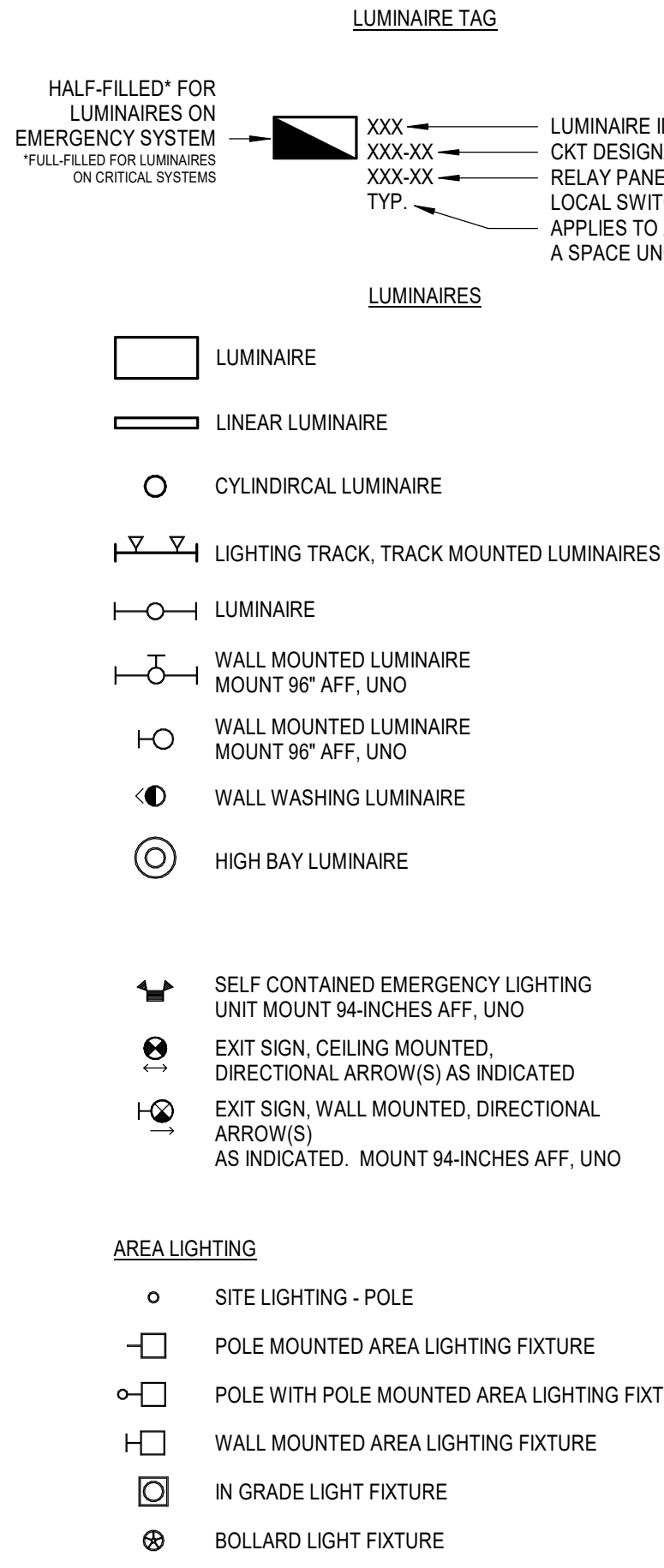
- SEE LIGHT FIXTURE SCHEDULE AND SYMBOLS LEGEND FOR MOUNTING HEIGHTS, UNLESS NOTED OTHERWISE.
- PROVIDE #10AWG MINIMUM CONDUCTORS FOR ALL EXTERIOR LIGHTING CIRCUITS.
- SEE ARCHITECTURAL BUILDING ELEVATIONS FOR LOCATION OF BUILDING MOUNTED EXTERIOR LIGHT FIXTURES.
- PROVIDE BEAD OF SILICONE SEALANT AROUND RECESSED BACK BOX PERIMETER AT ALL BUILDING MOUNTED EXTERIOR LIGHT FIXTURE LOCATIONS.
- CIRCUIT FIXTURES DENOTED WITH 'NL' AS UNSWITCHED NIGHT LIGHTS.
- FIXTURES DENOTED WITH LOWER CASE LETTERS SHALL BE CONTROLLED BY SWITCHES DENOTED WITH THE SAME LOWER CASE LETTER IN EACH ROOM.

GENERAL DEVICE BOX NOTES

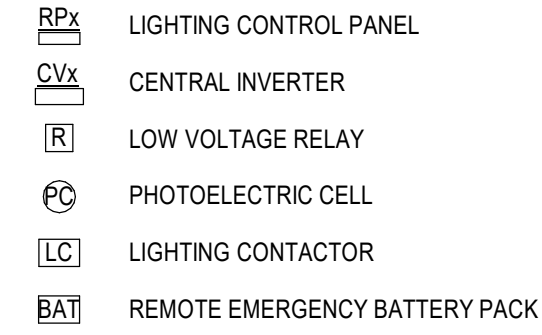
- SEE SYMBOLS LEGEND THIS SHEET FOR MOUNTING HEIGHTS UNLESS NOTED OTHERWISE ON DRAWINGS.
- ALL MOUNTING HEIGHTS ARE TO CENTERLINE OF BOXES UNLESS NOTES OTHERWISE.
- PROVIDE BOX EXTENDER FOR FLUSH INSTALLATION OF DEVICES LOCATED IN ARCHITECTURAL CASEWORK THAT IS FLUSH WITH ADJACENT WALL (SUCH AS RECEPTACLES FOR GARBAGE DISPOSERS).
- FLOOR BOXES: OBTAIN OWNER APPROVAL OF ALL BOX LOCATIONS PRIOR TO ROUGH IN. PROVIDE DEVICE PLATES AT DEVICES AND BLANK PLATES AT ALL UNUSED COMPARTMENTS.
- COORDINATE LOCATION OF DEVICE BOXES FOR SWITCHES, RECEPTACLES, AND SYSTEMS DEVICES WITH MARKERBOARDS. ADJUST BOX LOCATIONS TO AVOID MARKERBOARDS.
- COORDINATE LOCATION OF DEVICE BOXES FOR SWITCHES, RECEPTACLES, AND SYSTEMS DEVICES WITH TACKBOARDS. ADJUST BOX LOCATIONS TO AVOID TACKBOARDS. PROVIDE BOX EXTENDER FOR A FLUSH INSTALLATION WHERE DEVICES MUST BE MOUNTED AT TACKBOARD/TACKWALL.
- CEILING MOUNTED RECEPTACLES: AT SUSPENDED CEILINGS, ROUTE POWER TO RECEPTACLE VIA FLEXIBLE METALLIC CONDUIT WITH 6-FOOT SERVICE LOOP. FEED FMC FROM A J-BOX RIGIDLY SUPPORTED A MAXIMUM OF 24-INCHES ABOVE SUSPENDED CEILING OR AT BOTTOM OF STRUCTURE ABOVE, WHICHEVER IS LOWER. LOCATE J-BOX DIRECTLY ABOVE RECEPTACLE AND SUPPORT VIA STRUCTURE, OR VIA THREAD ROD AND UNISTRUT HUNG FROM STRUCTURE ABOVE IN HIGH STRUCTURE APPLICATIONS.
- DEVICES RECESSED IN MULLIONS: BACK BOXES TO BE RECESSED FOR FLUSH INSTALLATION OF DEVICE AND WALLPLATE. EXTEND CONCEALED CONDUIT IN MULLION UP TO WALL ABOVE AND STUB OUT ABOVE ACCESSIBLE CEILING. IN AREAS WITH NO CEILING, EXTEND CONDUIT THROUGH CABLES SOURCE TO ABOVE NEAREST ACCESSIBLE CEILING.

ELECTRICAL SYMBOLS

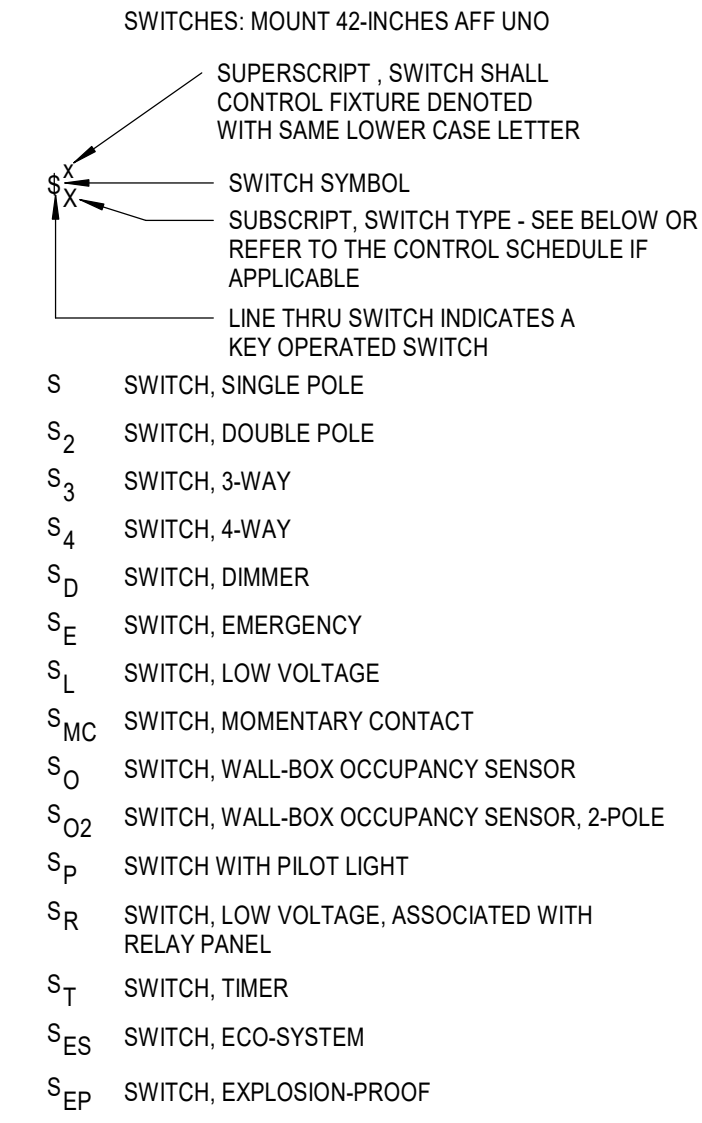
LIGHTING



LIGHTING CONTROL DEVICES



SWITCHES AND WALL-BOX CONTROLS



CEILING MOUNTED LIGHTING CONTROL DEVICES

- OCCUPANCY SENSOR
- VACANCY SENSOR

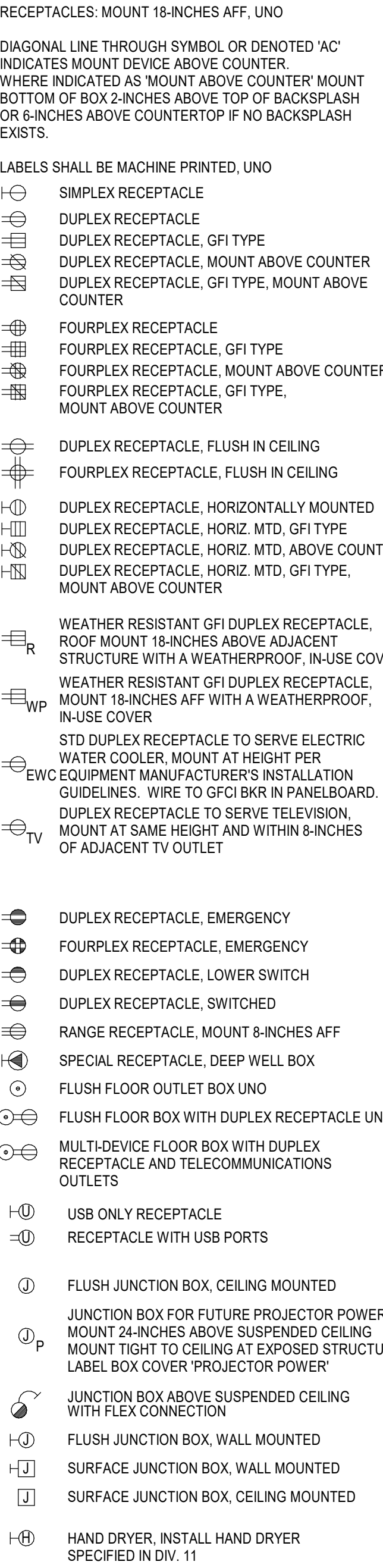
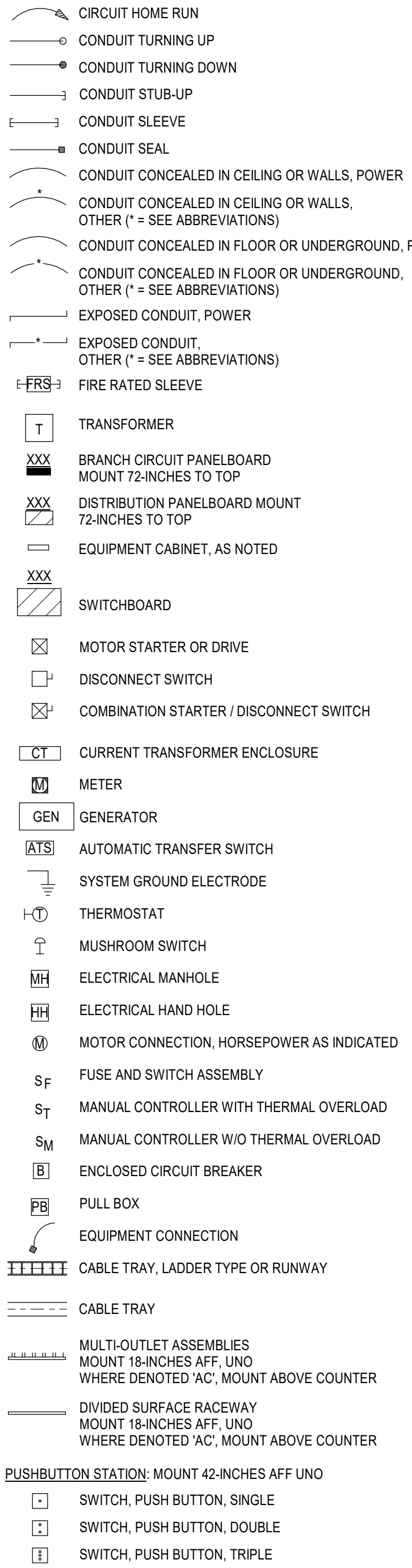
WALL MOUNTED LIGHTING CONTROL DEVICES:

- OCCUPANCY SENSOR
- VACANCY SENSOR

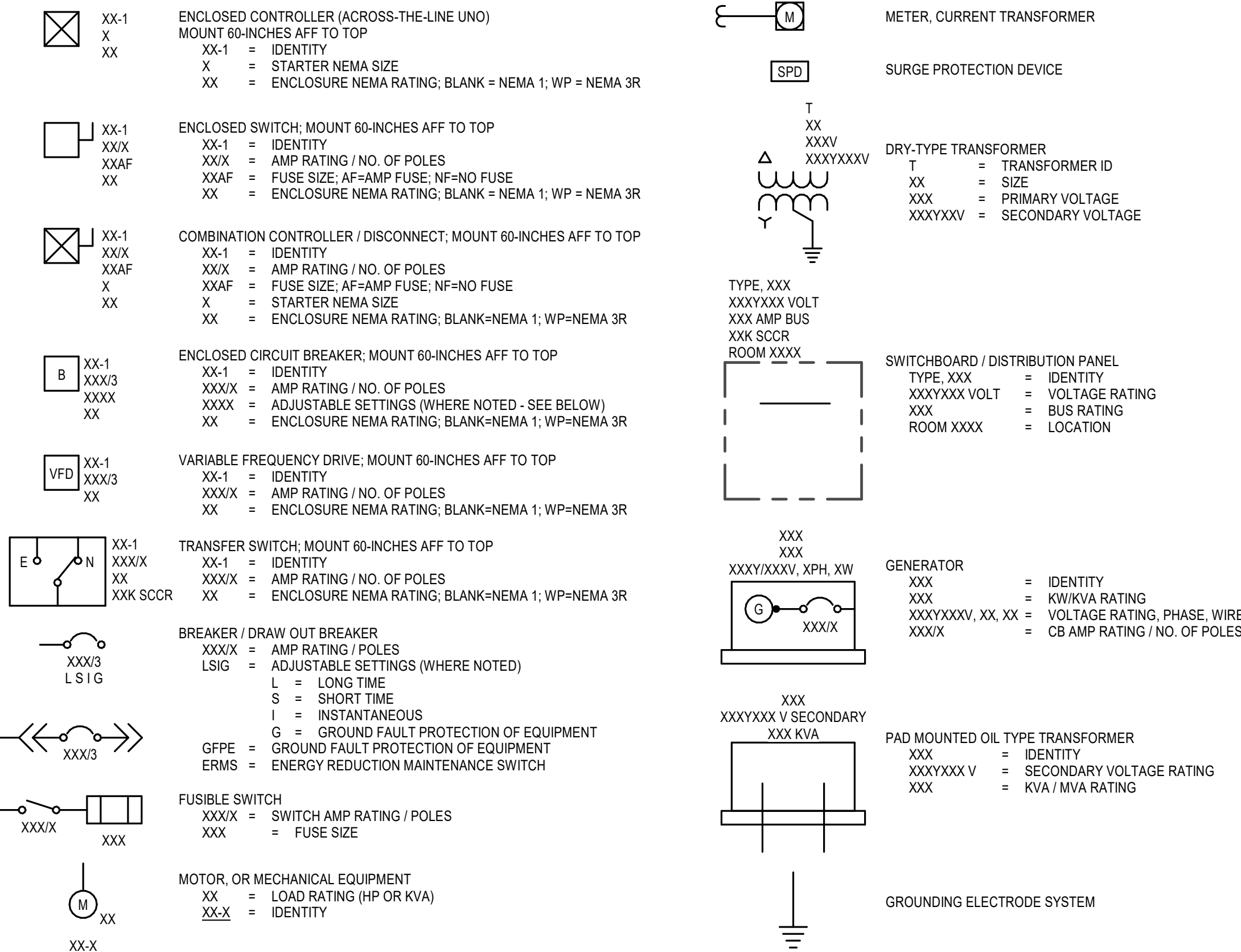
THEATRICAL LIGHTING DEVICES:

- THEATRICAL LIGHTING LCD STATION MOUNT 50-INCHES AFF, UNO
- THEATRICAL LIGHTING ENTRY STATION MOUNT 42-INCHES AFF, UNO
- THEATRICAL OUTLET BOX MOUNT 18-INCHES AFF, UNO
- THEATRICAL NETWORK OUTLET MOUNT 18-INCHES AFF, UNO
- THEATRICAL CONTROL CONSOLE OUTLET MOUNT 18-INCHES AFF, UNO

POWER



ONE-LINE DIAGRAM



Audodesk Docs://57-23140-00-FIT Haft Theater Phase 2 Renovations/57-23140-01-FIT Haft Roof_EL_24.rvt
2/27/2025 2:24:46 PM

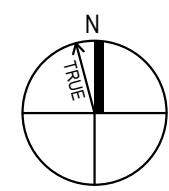
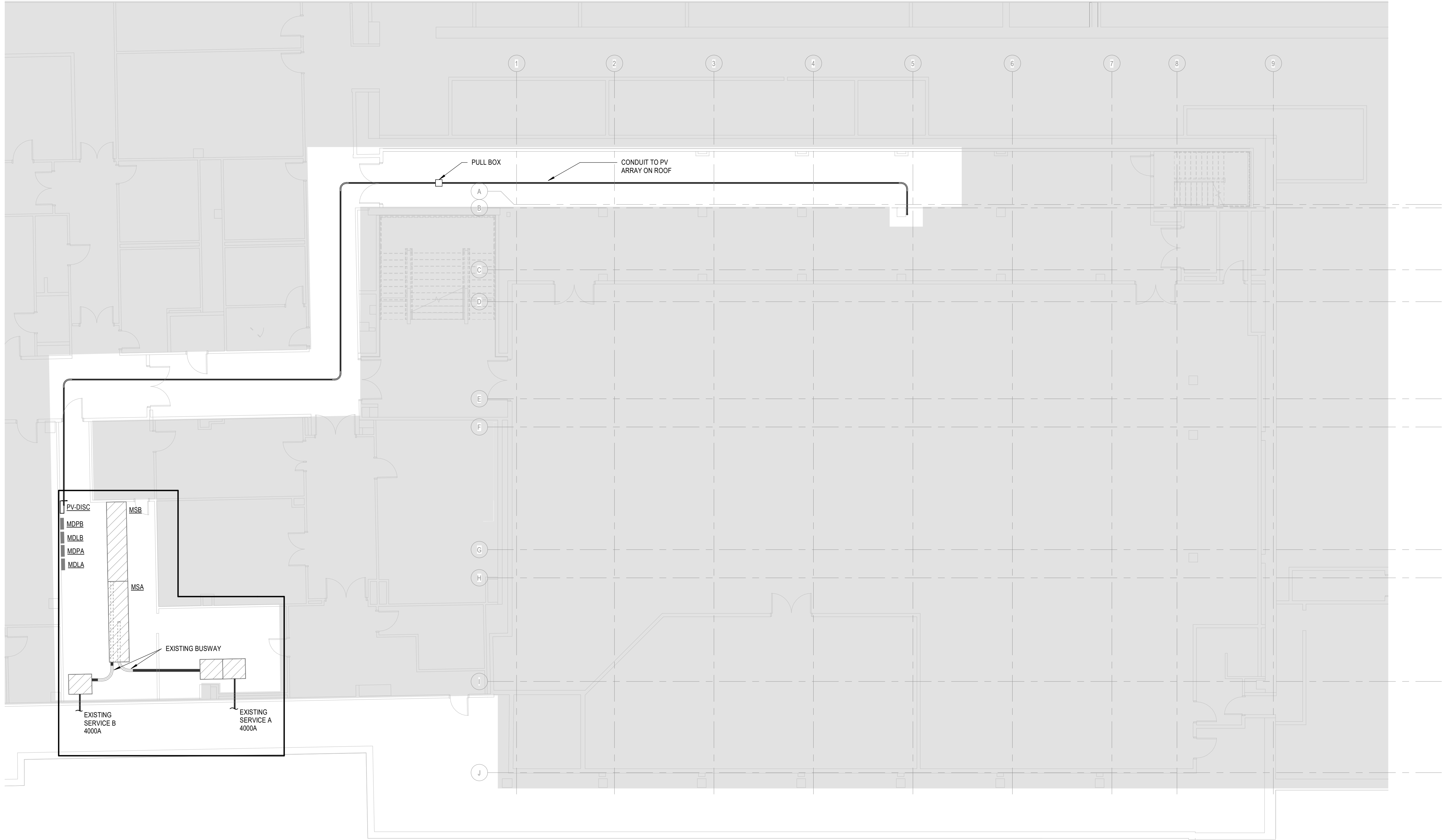
1

2

3

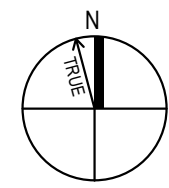
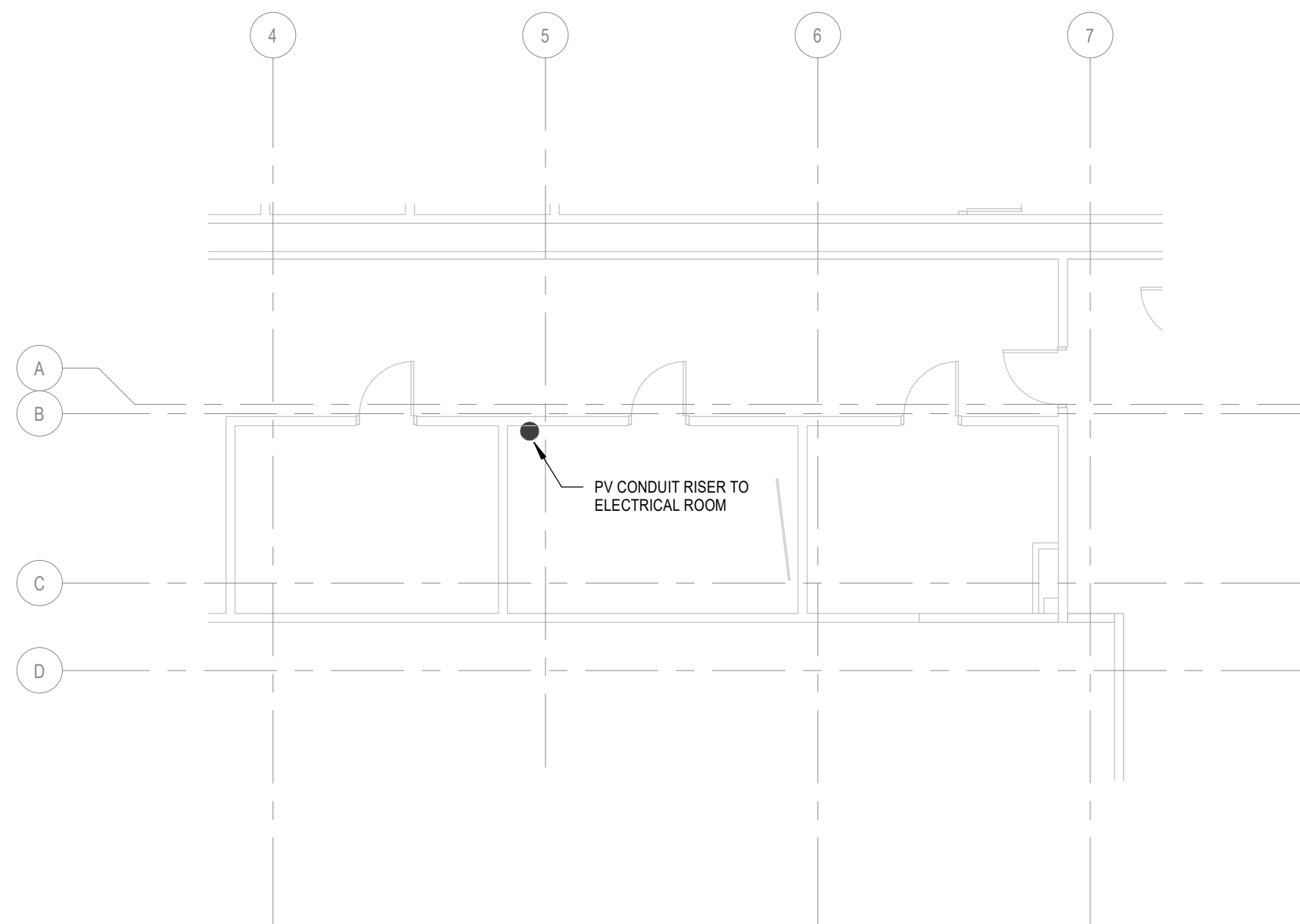
4

5



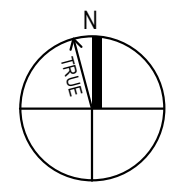
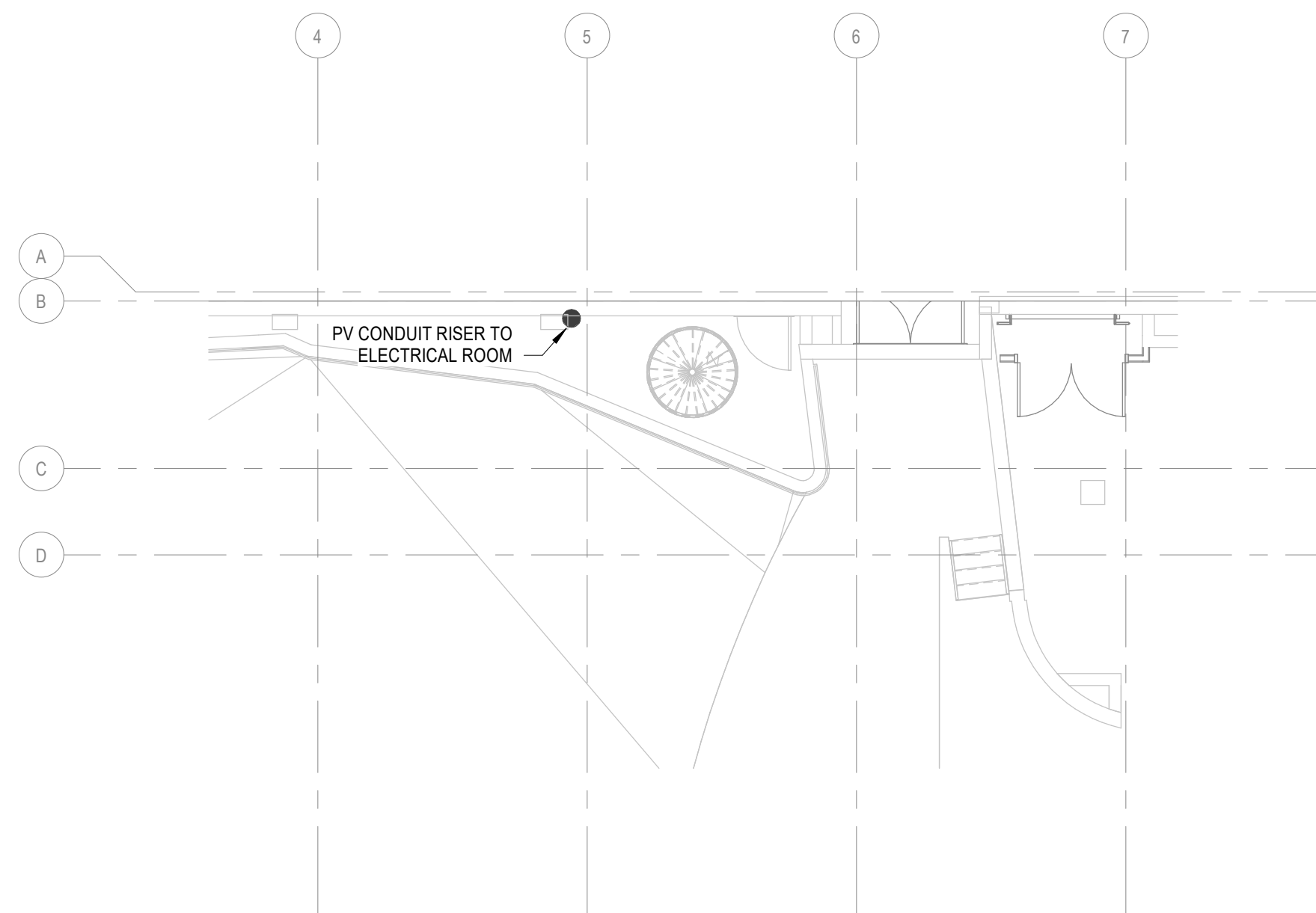
LEVEL 00 - PARTIAL POWER PLAN

SCALE: 1/8" = 1'-0"



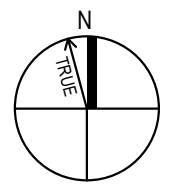
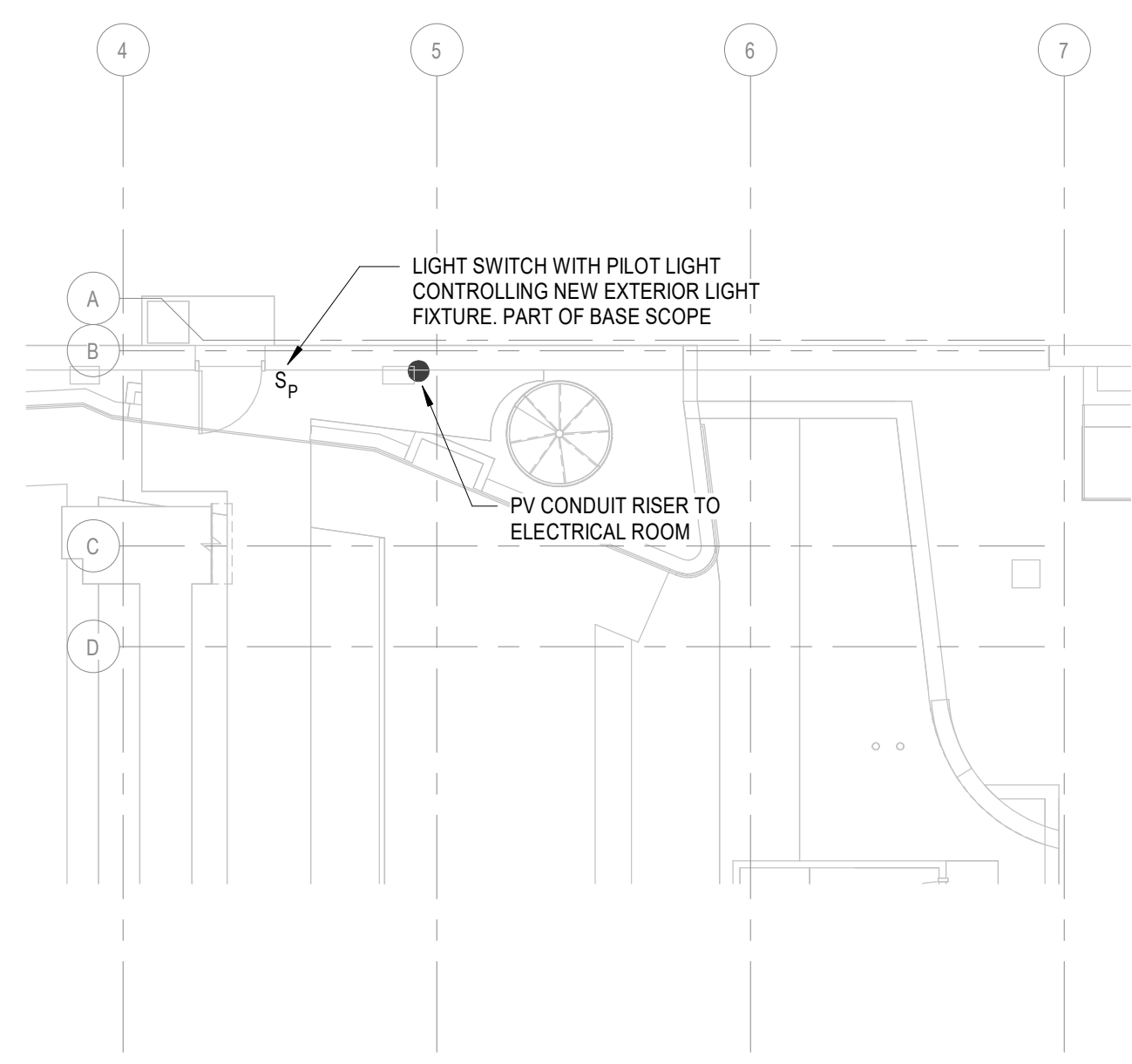
LEVEL 01 - PARTIAL POWER PLAN

SCALE: 1/8" = 1'-0"



LEVEL 02 - PARTIAL POWER PLAN

SCALE: 1/8" = 1'-0"



LEVEL 03 - PARTIAL POWER PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES

- ALL SCOPE SHOWN ON ELECTRICAL DRAWINGS IS PART OF ADD ALTERNATE, UNLESS NOTED OTHERWISE.
- SUPPORT ALL CONDUITS ABOVE ROOF WITH PORTABLE STANDOFFS TYPICAL OF COOPER DURABLOCK. SUPPORTS SHALL BE MADE OF UV RESISTANT MATERIAL AND SPACED ACCORDING TO NEC 342. MOUNT CONDUITS AT A MINIMUM OF 5'-10" ABOVE ROOF. CONDUITS SHALL NOT EXCEED 18" ABOVE ROOF.
- PROVIDE PULLBOXES AS REQUIRED IN CONDUIT RUNS TO ALLOW NO MORE THAN FOUR (4) 90 DEGREE BENDS IN ANY RUN. PULLBOXES SHALL BE NEMA 4 AND SIZED IN ACCORDANCE WITH THE NEC.
- PROVIDE MODULES AND ALL ASSOCIATED CABLING (INCLUDING GROUNDING) PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. DO NOT DRILL HOLES OR MODIFY THE FRAMES OF THE MODULES AS IT WILL VOID THE WARRANTY.
- ALL EXPOSED WIRING NOT LOCATED UNDER THE RACKING SYSTEM SHALL BE INSTALLED WITHIN CONDUIT UNLESS NOTED OTHERWISE OR ALLOWED BY PANEL MANUFACTURER INSTALLATION INSTRUCTIONS.
- ALL DC SOURCE CIRCUIT WIRING SHALL BE PROTECTED BY UV RESISTANT, HIGH TEMP SPLIT LOOM TUBING WHERE EXPOSED TO SUNLIGHT.
- ALL CONDUCTORS INSTALLED WITHIN RACKING SYSTEM SHALL BE INSTALLED PER NEC REQUIREMENTS. SUPPORT CONDUCTORS PER RACKING MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PROVIDE SUPPORT CLIPS AS REQUIRED. CONDUCTORS SHALL NOT LAY ON THE ROOF.
- ALL BRANCH CIRCUIT CONDUCTORS SHALL BE PROVIDED WITH GROUND BONDING BUSHINGS AT THE CONNECTION TO THE ASSOCIATED PANELBOARD ENCLOSURE.
- ORGANIZE THE ROOFTOP CONDUIT ROUTING AND LOCATIONS ON THE ROOF IN A CLEAR, LOGICAL MANNER. CONDUIT(S) TO RUN PARALLEL WITH ROOF PARAPET/ EDGE, MODULE ARRAY, AND ONE ANOTHER WHEN POSSIBLE. IT IS ACCEPTABLE TO STACK CONDUITS AS LONG AS THE RESULTING CONDITION DOES NOT SHADE ANY MODULE.
- WHERE REQUIRED DUE TO LAYOUT, PROVIDE #10 AWG COPPER 2000VDC PV-WIRE MODULE JUMPERS TO EXTEND MODULE LEADS TO COMPLETE STRING(S). COORDINATE CONNECTORS WITH MODULE MANUFACTURER.
- COORDINATE ALL CONDUIT ROUTING IN FIELD WITH ALL TRADES AND WITH OWNER PRIOR TO INSTALLATION.
- PROVIDE LINEAR THERMAL EXPANSION FITTINGS AT 100'-0" INTERVALS FOR ALL CONDUIT ON THE ROOF.
- REFER TO SPECIFICATION 26 05 33 RACEWAYS AND BOXES FOR CONDUIT SPECIFICATIONS.
- WHERE CONDUITS CROSS THE ACCESS PATHWAYS, CONDUITS SHALL BE SUCH THAT THEY ARE 12" OR LESS ABOVE THE ROOF.
- UNLESS NOTED OTHERWISE, ALL DC SOURCE CONDUCTORS SHALL NOT BE ROUTED MORE THAN 10'-0" AWAY FROM ANY ARRAY SECTION.

SHEET NOTES



FIT HAFT THEATER - ROOF REPLACEMENT & PV PANELS

233 WEST 27TH STREET, NEW YORK, NY 10001
100183486-1 - ARCHITECTURAL

ISSUE FOR BID / FILING - C1668
02/28/2025
REVISIONS

57-23140-01

PARTIAL POWER PLANS

E201.00

GRAND TOTAL

A ALL SCOPE SHOWN ON ELECTRICAL DRAWINGS IS PART OF ADDITIONAL U.N.O.

B SUPPORT ALL CONDUITS ABOVE FLOOR WITH PORTABLE STANDARDS TYPICAL OF THE PROJECT.

C COOPER DURABLECOX SUPPORTS SHALL BE MADE OF VULCANIZED RUBBER WITH A MINIMUM OF 1/2" ABOVE FLOOR. CONDUITS SHALL NOT EXCEED 1/2" ABOVE FLOOR.

D PROVIDE PULLBOXES AS REQUIRED IN CONDUIT RUNS TO ALLOW NO MORE THAN FOUR (4) 90 DEGREE BENDS IN ANY RUN. PULLBOXES SHALL BE NEMA 4.

E AND SIZED IN ACCORDANCE WITH THE NEC.

F PROVIDE MODULES AND ALL ASSOCIATED CABLES INCLUDING ALL ACCESSORIES.

G PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, DO NOT CUT, DRILL, OR MODIFY THE FRAMES OF THE MODULES AS IT WILL VOID THE WARRANTY.

H ALL EXPOSED WIRING NOT LOCATED UNDER THE RACKING SYSTEM SHALL BE INSTALLED WITHIN CONDUIT UNLESS NOTED OTHERWISE OR OTHERWISE NOTED ON THE PANEL/FRAMING INSTALLATION INSTRUCTIONS.

F ALL DC SOURCE CIRCUIT WIRING SHALL BE PROTECTED BY UV RESISTANT, HIGH TEMP SILICON TUBING WHERE EXPOSED TO SUNLIGHT.

G ALL CONDUCTORS INSTALLED WITHIN RACKING SYSTEM SHALL BE INSTALLED IN CONDUITS. SUPPORT CONDUCTORS PER RACKING MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PROVIDE SUPPORT CLIPS AS REQUIRED. CONDUCTORS SHALL NOT LAY ON THE ROOF.

H ALL BRANCH CIRCUIT CONDUCTORS SHALL BE PROVIDED WITH GROUND BONDING BUSINGS AT THE CONNECTION TO THE ASSOCIATED PANELBOARD ENCLOSURE.

○ CLEAR THE ROOFTOP CONDUIT ROUTING AND CONDUIT ON THE ROOF IN CLEAR, LOGICAL MANNER (CONDUITS TO RUN PARALLEL WITH ROOF PARAPET).

○ EDITORIAL ARRAY, AND ONE ANOTHER WHEN POSSIBLE. IT IS ACCEPTABLE

○ TO STACK CONDUITS AS LONG AS THE RESULTING CONDITION DOES NOT SHADE ANY MODULE.

J WHERE REQUIRED DUE TO LAYOUT, PROVIDE #1 AWG COPPER 2000VC
P/VRG MIDDLE JUMPERS TO EXTEND MODULE LEADS
TO COMPLETE
S(WING); COORDINATE CONNECTIONS WITH MODULE
MANUFACTURER.

K COORDINATE ALL CONDUIT ROUTING IN FIELD WITH ALL
TRADES AND WITH
OWNER PRIOR TO INSTALLATION.
PROVIDE LINEAR THERMAL EXPANSION FITTINGS AT
10'-0" INTERVALS FOR ALL
CONDUIT ON THE ROOF.

N REFER TO SPECIFICATION 26 05 33 RACEWAYS AND BOXES
FOR CONDUIT
SPECIFICATIONS.

O WHERE CONDUITS CROSS THE ACCESS PATHWAYS,
CONDUITS SHALL BE SUCH
THAT 12" OR 12" OR LESS ABOVE THE ROOF.

P UNLESS NOTED OTHERWISE, ALL DC SOURCE
CONDUCTORS SHALL NOT BE
ROUTED MORE THAN 10'-0" AWAY FROM ANY ARRAY
SECTION.

Autodesk Docs/57-23140-00_FIT Haft Auditorium Phase 2 Renovations/57-23140-01_FIT Haft Roof_EL_24.rvt
2/27/2025 2:24:47 PM

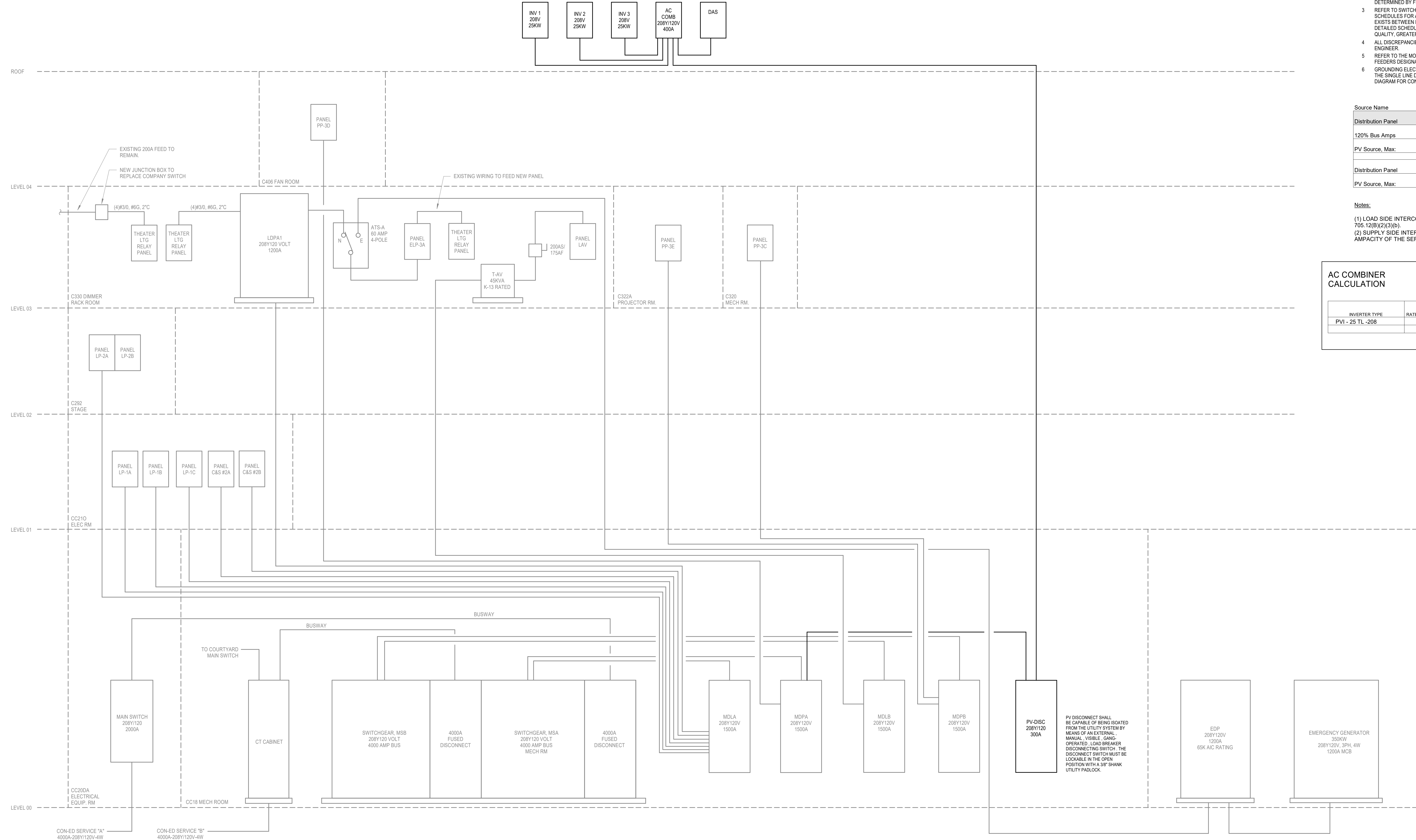
1

2

3

4

5



- GENERAL SINGLE LINE NOTES
- OVERCURRENT DEVICES OF ENTIRE DISTRIBUTION SYSTEM SHALL MEET STATED FAULT CURRENT VALUES WITH FULLY RATED EQUIPMENT.
 - CONDUCTOR LENGTHS INDICATED ON THE SINGLE LINE DIAGRAM ARE FOR FAULT CURRENT CALCULATIONS ONLY. ACTUAL LENGTH SHALL BE DETERMINED BY FIELD CONDITIONS AND ACTUAL ROUTES OF FEEDERS.
 - REFER TO SWITCHBOARD SCHEDULES AND DISTRIBUTION PANEL SCHEDULES FOR ADDITIONAL REQUIREMENTS. WHERE A DISCREPANCY EXISTS BETWEEN EQUIPMENT ON THE SINGLE LINE DIAGRAM AND THE DETAILED SCHEDULES, THE ITEM OR ARRANGEMENT WITH BETTER QUALITY, GREATER QUANTITY, OR HIGHER COST SHALL BE USED.
 - ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - REFER TO THE MOTOR AND SPECIAL CONNECTION SCHEDULE FOR ALL FEEDERS DESIGNATED "M".
 - GROUNDING ELECTRODE CONDUCTORS SIZES ARE NOT INDICATED ON THE SINGLE LINE DIAGRAM ARE. REFER TO THE GROUNDING RISER DIAGRAM FOR CONNECTIONS AND CONDUCTOR SIZES.

Source Name	Rated Amps	Notes
Distribution Panel	1500	
120% Bus Amps	1800	(1)
PV Source, Max:	300	(1)
Distribution Panel	1500	(2)
PV Source, Max:	1500	(2)

Notes:
(1) LOAD SIDE INTERCONNECTION , 120% BUS RATING PER NEC 705.12(B)(2)(3)(b).
(2) SUPPLY SIDE INTERCONNECTION, MUST NOT EXCEED THE AMPACITY OF THE SERVICE CONDUCTORS PER NEC 705.11(A).

AC COMBINER CALCULATION				PANEL NAME :	AC-CMB
				AMPACITY :	400
				VOLTAGE :	208
INVERTER TYPE	RATED AMPS	AMPS x 1.25	QTY	TOTAL DEMAND AMPS	
PVI - 25 TL -208	69.5	86.875	3	260.625	
TOTAL DEMAND AMPS				260.625	

					FEEDER SCHEDULE										SHORT CIRCUIT CALCULATION						
Feeder Data					Length	FLA (Amps)	Type	Insulation	#	#	Feeder Size (AWG/KMIL)				%VD	%VD	Upstream	Inverter	Device Isc		
Feeder Name	FED FROM				(ft)			Sets	Cond	Phase	N	G	1/C		Total	Isc	Contribution	w/o Inv	w/ Inv	NOTES	
MDPA	PV-DISC				10	208.5	Cu	XHHW-2	1	3	4/0	4/0	4	3"	0.109%	0.109%	35000	64.1	29792	29856	1.2
PV-DISC	AC COMB				300	208.5	Cu	XHHW-2	1	3	350	350	4	3"	2.031%	2.141%	29792	64.1	6972	7036	1.2
AC COMB	INV 1				15	69.5	Cu	XHHW-2	1	3	1		6	1-1/2"	0.139%	2.280%	6972	64.1	6246	6310	
AC COMB	INV 2				20	69.5	Cu	XHHW-2	1	3	1		6	1-1/2"	0.185%	2.465%	6246	64.1	5484	5549	
AC COMB	INV 3				25	69.5	Cu	XHHW-2	1	3	1		6	1-1/2"	0.231%	2.696%	5484	64.1	4759	4823	

Average 2.696%

- SCHEDULE NOTES:
- FEEDER UPSIZED FOR VOLTAGE DROP.
 - NEUTRAL PROVIDED FOR DAS. INVERTERS DO NOT REQUIRE NEUTRAL.

- GENERAL NOTES
- A. WHERE FEEDERS ARE UPSIZED FOR VOLTAGE DROP, GROUND WIRES ARE UPSIZED PROPORTIONALLY BASED ON CIRCULAR MILS.
B. VOLTAGE DROP TARGET IS 2% BASED ON LINE LOSS TARGETS.
C. SHORT CIRCUIT CALCULATIONS BASED ON METHOD PUBLISHED IN BUSSMANN SPD BOOK.
D. AVAILABLE SHORT CIRCUIT BASED ON EXISTING DRAWINGS.
E. TOTAL VOLTAGE DROP IS THE SUM OF VOLTAGE DROP FROM THE POINT OF INTERCONNECTION TO THE DEVICE.
F. DISTANCES ARE ESTIMATES GENERATED FOR ENGINEER'S CALCULATIONS. CONTRACTOR IS RESPONSIBLE FOR OWN MEASUREMENTS AND TAKEOFFS.
G. FOR ALTERNATE CU CONDUCTOR SIZING, REFERENCE SHEET E7.
H. CABLE AMPACITY CALCULATIONS BASED ON METHOD REFERENCED IN NEC ARTICLE 310.15(A)(2).
I. XHHW-2 DOES NOT REQUIRE ADDITIONAL DERATING IF LOCATED LESS THAN 7/8" OF ROOF.
J. TEMPERATURE DERATING CALCULATIONS BASED ON METHOD REFERENCED IN NEC ARTICLES 310.15(A)(3).



FIT HAFT THEATER - ROOF REPLACEMENT
& PV PANELS
243 WEST 27TH STREET, NEW YORK, NY 10001
100183486-1 - ARCHITECTURAL

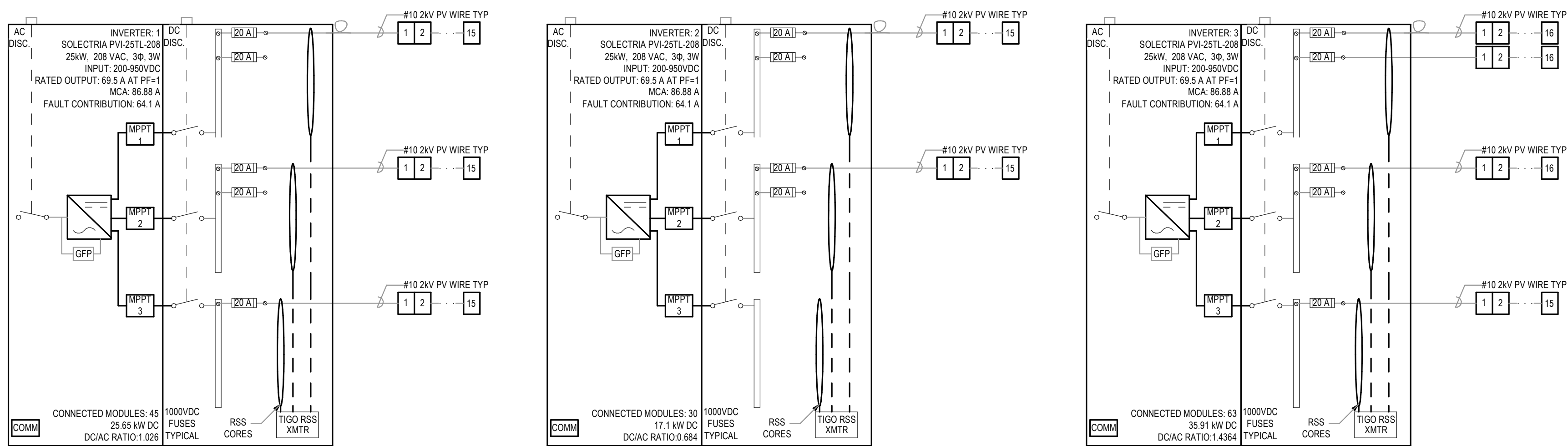
ISSUE FOR BID /
FILING - C1668
02/28/2025
REVISIONS

57-23140-01
ELECTRICAL
RISER

E501.00

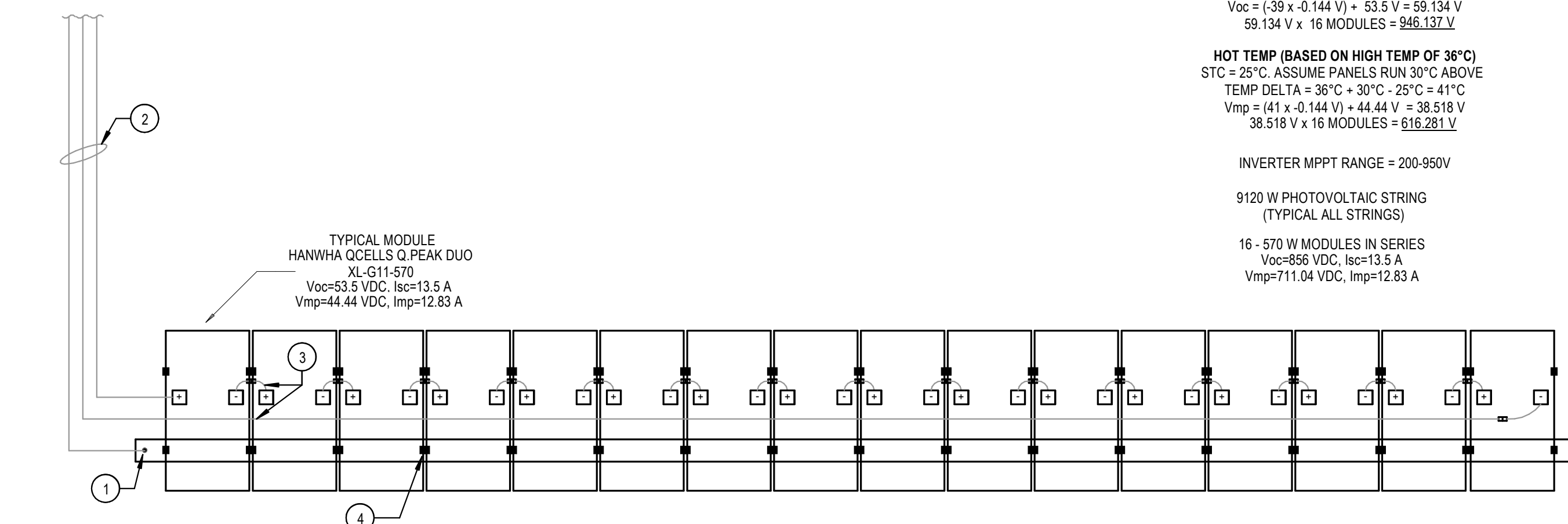
1

2



2 INVERTER STRINGING DETAILS

E601.00 NO SCALE



1 MAX MODULES PER PHOTOVOLTAIC STRING

E601.00 SCALE: 12" = 1'-0"

CALCULATIONS

OVERCURRENT PROTECTION
13.5 A x 1.56 = 21.06 A (30 A FUSE)

VOLTAGE CORRECTIONS
TEMPERATURE COEFFICIENT OF VOLTAGE = -0.144 V/°C

COLD TEMP (BASED ON LOW TEMP OF -14 °C)
STC = 25°C, TEMP DELTA = (-14 °C)-25°C = -39°C
Voc = (-39 x -0.144 V) + 63.5 V = 59.134 V
59.134 V x 16 MODULES = 946.132 V

HOT TEMP (BASED ON HIGH TEMP OF 38°C)
STC = 25°C, ASSUME PANELS RUN 37°C ABOVE
TEMP DELTA = 38°C + 30°C - 25°C = 43°C
Vmp = (43 x -0.144 V) + 44.44 V = 38.518 V
38.518 V x 16 MODULES = 616.291 V

INVERTER MPPT RANGE = 200-950V

9120 W PHOTOVOLTAIC STRING
(TYPICAL ALL STRINGS)

16 - 570 W MODULES IN SERIES
Voc=856 VDC, Isc=13.5 A
Vmp=711.04 VDC, Imp=12.83 A

KEY NOTES

1. PROVIDE GROUND CONNECTION TO RACKING SYSTEM. SEE DETAIL 3PSTC-E8 FOR GROUNDING INFORMATION.
2. ALL WIRING, EXCEPT FOR EQUIPMENT GROUNDING CONDUCTOR, SHALL BE 2KV CU PV WIRE AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS. CONDUITS FEEDING PV SOURCE CIRCUITS MAY BE COMBINED WITH OTHER SOURCE CIRCUITS ASSOCIATED WITH SAME INVERTER. SEE SINGLE LINE DIAGRAM FOR MORE INFORMATION. CONDUCTORS SHALL BE INSTALLED PER 2019 CEC 690.31. BOTH POSITIVE AND NEGATIVE CONDUCTORS ARE UNGROUNDED AND SHALL BE COLOR CODED IN THE FOLLOWING FASHION:
POSITIVE = RED
NEGATIVE = BLACK
3. CONDUCTORS SHALL BE INSTALLED IN ACCORDANCE WITH 690.31 AND ROUTED WITHIN THE RACKING SYSTEM. CONDUCTORS SHALL BE INSTALLED IN A WORKMANSHIP LIKE MANNER, PROTECTED FROM SHARP METALLIC SURFACES, PROPERLY BUNDLED (WITH UV RESISTANT MATERIALS) AND SECURED WITHIN THE RACKING SYSTEM.
4. UL LISTED GROUNDING HARDWARE PROVIDED WITH THE RACKING SYSTEM. THE HARDWARE WILL PROVIDE A SOLID ELECTRICAL CONNECTION OF THE SOLAR PANEL FRAME(S) TO THE INTERNAL RACKING GROUNDING SYSTEM.

GENERAL NOTES

- A. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- B. FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
- C. SEE ONE-LINE DIAGRAMS FOR STRING QUANTITIES.
- D. TEMPERATURES INDICATED IN STRING CALCULATION OBTAINED FROM SOLARBCS.ORG
- E. WHERE REQUIRED BY PHYSICAL LAYOUT AND STRINGING CONFIGURATION, PROVIDE SOURCE CONDUCTOR JUMPERS, UTILIZING #10 2KV PV WIRE AND CONNECTORS THAT MATCH MODULES BETWEEN MODULES IF MODULE PROVIDED CONDUCTORS ARE NOT LONG ENOUGH TO CONNECT TO EACH OTHER.
- F. ALL CONNECTORS SHALL MATCH MODULE CONNECTORS.
- G. MODULE LAYOUT SHOWN IN THIS DETAIL IS DIAGRAMMATIC AND INTENDED TO SHOW THE REQUIRED CONNECTIONS BETWEEN THE POSITIVE AND NEGATIVE CONDUCTORS IN EACH STRING. REFER TO DETAIL 3PSTC-E9 FOR MODULE WIRE MANAGEMENT AND THE E1 SERIES FOR STRING LAYOUT.

3

4

5

INVERTER #

• 4 X 3/4" - RED WITH WHITE LETTERS

WARNING

Arc Flash and Shock Risk

Appropriate PPE Required

110 in
23.3 cal/cm²
PPE
480 VAC
00
42 in
12 in

Location: INV#

VALUES SHOWN ARE EXAMPLES ONLY. EXACT VALUES TO BE PROVIDED BY ENGINEER FOLLOWING ORDER OF BREAKERS AND FUSES.

WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

PHOTOVOLTAIC MODULES PRODUCE DC VOLTAGE WHENEVER THEY ARE EXPOSED TO SUNLIGHT

NEC 690.13(B) - PV LABEL 05-102

• 4 X 3" - WHITE WITH BLACK LETTERS
• ONE STICKER PER INVERTER

WARNING

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

NEC 690.5(C) - PV LABEL 05-101

• 4 X 3" - WHITE WITH BLACK LETTERS
• ONE STICKER PER INVERTER

PHOTOVOLTAIC SYSTEM

DC DISCONNECT

MAX VOLTAGE 887 VDC
MAX CIRCUIT CURRENT 51.0 AMPS

PER NEC 690.53
HEADER: BLACK WITH WHITE LETTERING

LOCATE AT INV1

PHOTOVOLTAIC SYSTEM

AC DISCONNECT

RATED AC OUTPUT CURRENT: 69.5 A
NOMINAL OPERATING AC VOLTAGE: 208 V

PER NEC 690.54
HEADER: BLACK WITH WHITE LETTERING
PLACE AT AC DISCONNECT

LOCATE AT INV1

PHOTOVOLTAIC SYSTEM

DC DISCONNECT

MAX VOLTAGE 887 VDC
MAX CIRCUIT CURRENT 34.0 AMPS

PER NEC 690.53
HEADER: BLACK WITH WHITE LETTERING

LOCATE AT INV2

PHOTOVOLTAIC SYSTEM

AC DISCONNECT

RATED AC OUTPUT CURRENT: 69.5 A
NOMINAL OPERATING AC VOLTAGE: 208 V

PER NEC 690.54
HEADER: BLACK WITH WHITE LETTERING
PLACE AT AC DISCONNECT

LOCATE AT INV2

PHOTOVOLTAIC SYSTEM

DC DISCONNECT

MAX VOLTAGE 956 VDC
MAX CIRCUIT CURRENT 68.0 AMPS

PER NEC 690.53
HEADER: BLACK WITH WHITE LETTERING

LOCATE AT INV3

PHOTOVOLTAIC SYSTEM

AC DISCONNECT

RATED AC OUTPUT CURRENT: 69.5 A
NOMINAL OPERATING AC VOLTAGE: 208 V

PER NEC 690.54
HEADER: BLACK WITH WHITE LETTERING
PLACE AT AC DISCONNECT

LOCATE AT INV3

WARNING: PHOTOVOLTAIC POWER SOURCE

PER 690.31(G)(3) - PV LABELS 02-314

• RED BACKGROUND WITH REFLECTIVE LETTERING
• PLACE AT CONDUITS, RACEWAYS, ENCLOSURES, COMBINER BOXES AND DISCONNECTS
• PLACE EVERY 10' ON CONDUITS.

AC DISCONNECT

NEC 690.13(B) - PV LABEL 03-323

• 4 X 3/4" - RED WITH WHITE LETTERS
• ONE STICKER PER AC DISCONNECT

MAIN SOLAR SYSTEM AC DISCONNECT

PV LABEL 03-333

• 4" X 1" - RED WITH WHITE LETTERS
• ONE STICKER PER AC DISCONNECT

WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13(B) - PV LABEL 05-215

• 4 X 2" - ORANGE AND WHITE WITH BLACK LETTERS
• ONE STICKER PER DISCONNECT

PHOTOVOLTAIC SYSTEM

AC DISCONNECT

RATED AC OUTPUT CURRENT: 260.6 A
NOMINAL OPERATING AC VOLTAGE: 208 V

PER NEC 690.54
HEADER: BLACK WITH WHITE LETTERING
LOCATE AT MAIN PV DISCONNECT

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56(C)(3) - PV LABEL 04-316

RED BACKGROUND WITH REFLECTIVE LETTERING

PHOTOVOLTAIC SYSTEM COMMUNICATION EQUIPMENT

WARNING - ELECTRIC SHOCK HAZARD

• 2-1/2 x 1" - RED WITH WHITE LETTERS
• ONE STICKER OR PLACARD PER DAS ENCLOSURE

POINT OF INTERCONNECTION LABELS

WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12(D)(4) - PV LABEL 03-211

• 4 X 2" - RED WITH WHITE LETTERS
• ONE STICKER AT POINT OF CONNECTION(S)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE 'OFF' POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT

NEC 690.56(C)(1)(b) - PV LABEL 05-113

PLACE AT MAIN AC SYSTEM DISCONNECT

PHOTOVOLTAIC SYSTEM

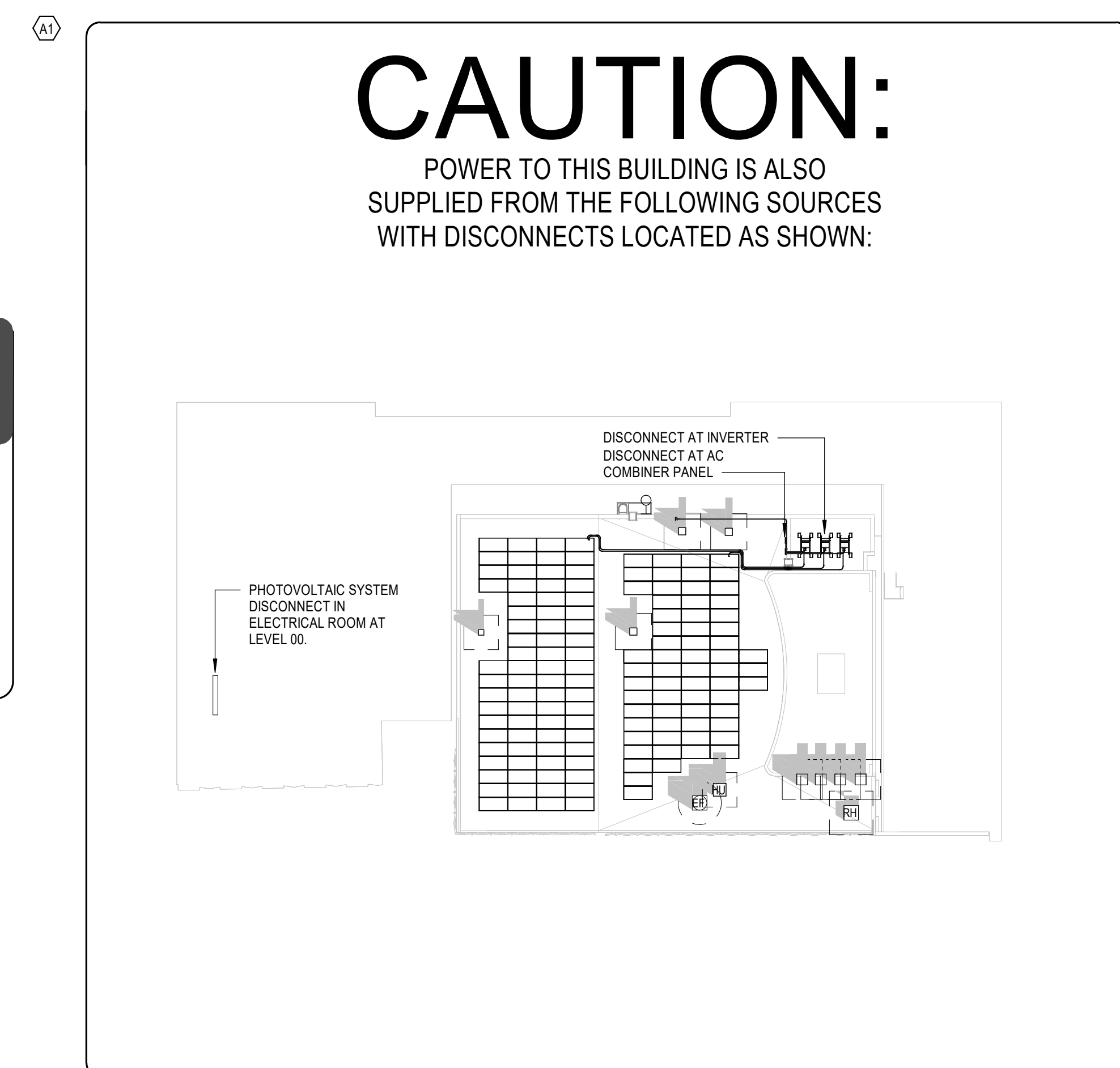
AC DISCONNECT

RATED AC OUTPUT CURRENT: 260.6 A
NOMINAL OPERATING AC VOLTAGE: 208 V

PER NEC 690.54
HEADER: BLACK WITH WHITE LETTERING

PV SYSTEM

• 4 X 3/4" - RED WITH WHITE LETTERS



PANELBOARD LABELS

PANEL #

• 4 X 3/4" - RED WITH WHITE LETTERS

WARNING

ELECTRIC SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13(B) - PV LABEL 05-215

• 4 X 2" - ORANGE AND WHITE WITH BLACK LETTERS
• ONE STICKER PER DISCONNECT

PHOTOVOLTAIC POWER SOURCE

RATED AC OUTPUT CURRENT: 260.6 A
NOMINAL OPERATING AC VOLTAGE: 208 V

PER NEC 690.54 - PV LABEL 03-390
HEADER: RED WITH WHITE LETTERING
LOCATE AT PANEL AC COMB

WARNING

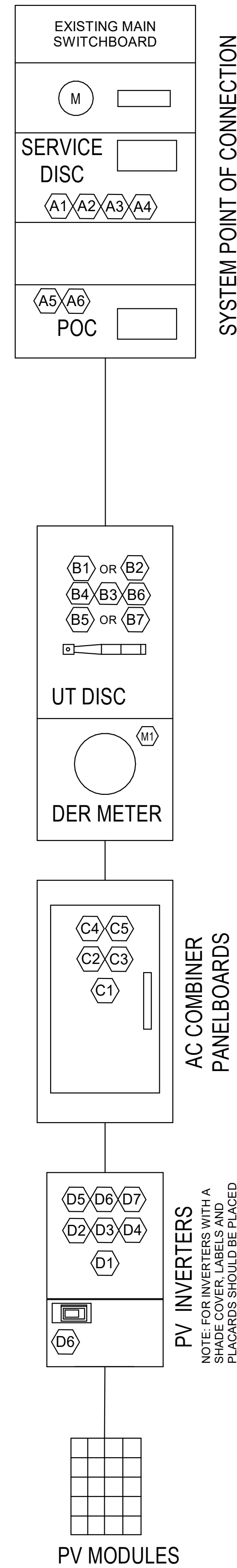
Arc Flash and Shock Risk

Appropriate PPE Required

110 in
23.3 cal/cm²
PPE
480 VAC
00
42 in
12 in

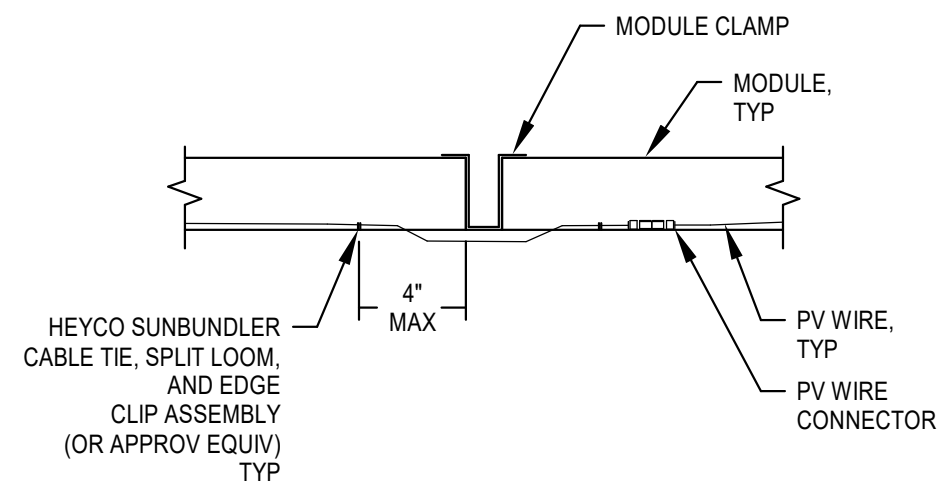
Location: INV#

VALUES SHOWN ARE EXAMPLES ONLY. EXACT VALUES TO BE PROVIDED BY ENGINEER FOLLOWING ORDER OF BREAKERS AND FUSES.



Autodesk Docs/157-23140-00 FIT Hall Auditorium Phase 2 Renovations/57-23140-01 FIT Hall Roof_EL_24.rvt
2/27/2025 2:24:48 PM

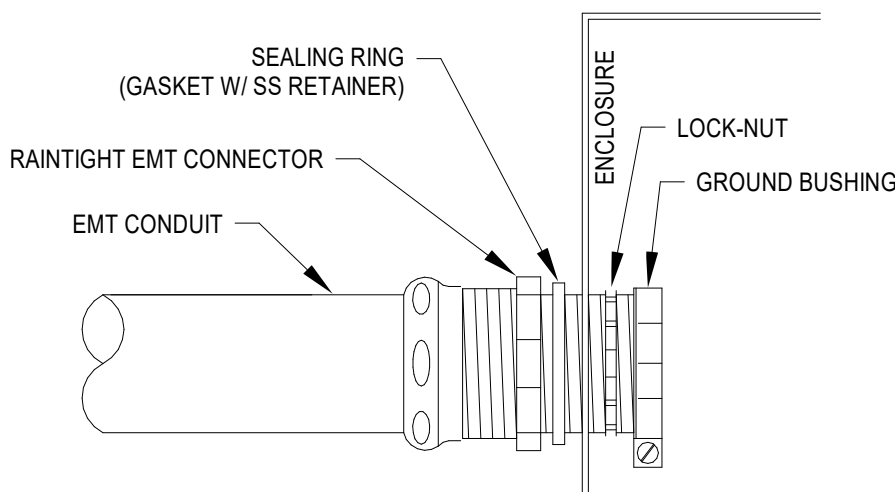
1



- NOTES:
1. LOCATE CABLE TIE/EDGE CLIP ASSEMBLY 4" MAX FROM MODULE EDGE. CLIP UNDER LIP OF MODULE FRAME.
 2. DO NOT PLACE MODULE CONNECTORS BETWEEN MODULES, ON PURLIN, OR ANYWHERE ELSE THEY WILL BE EXPOSED TO DIRECT SUNLIGHT
 3. PROVIDE SLACK IN CONDUCTORS ACROSS GAP, BUT DO NOT EXCEED 1/2" BETWEEN THE CONDUCTORS AND THE GAP

1
E602.00 SCALE: 1/2" = 1'-0"

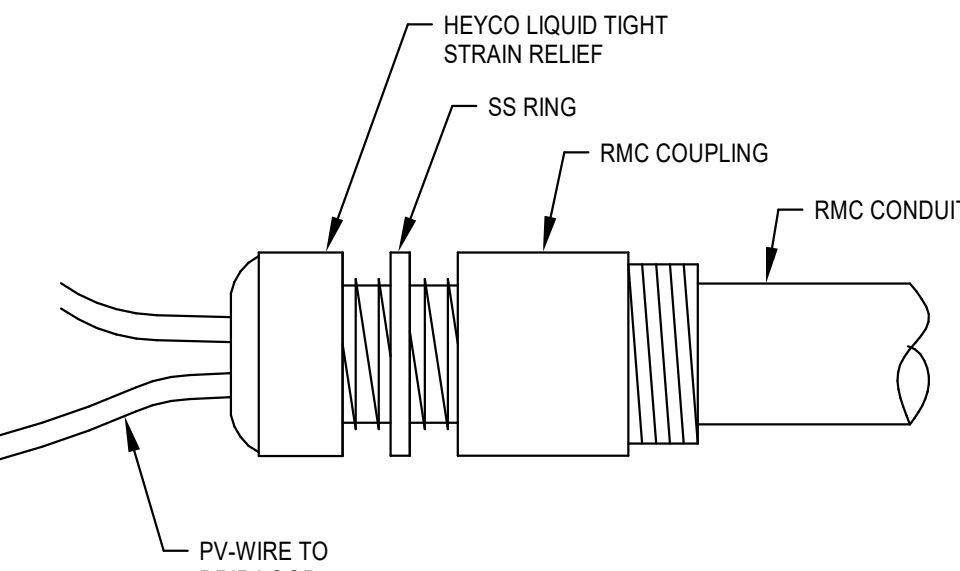
2



- NOTES:
1. BOTTOM 1/3 OF SIDE AND BOTTOM ENTRY ONLY
 2. GROUND BUSHING REQUIRED AS PER NEC
 3. IF NEEDING TO MAINTAIN NEMA 4/4X ENCLOSURE REQUIREMENT FOR BOTTOM ENTRY CONDUITS, THEN INSTALL SEALING RING ON BOTTOM ENTRIES; OTHERWISE SEALING RING NOT REQUIRED
 4. FOR ENTRY INTO PLASTIC BOXES "LONG THROAT" CONDUIT FITTINGS SHALL BE USED
 5. NO CONDUITS SHALL BE INSTALLED ON THE TOP SIDE OF ANY ENCLOSURE

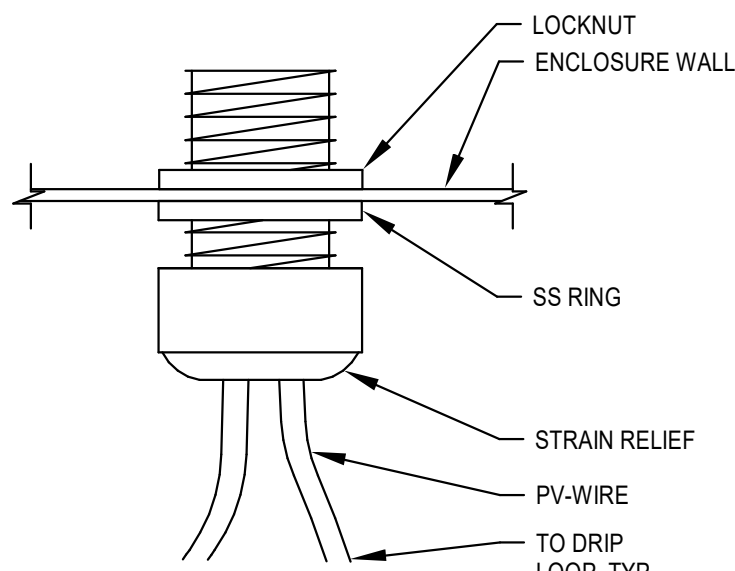
3
E602.00 SCALE: 1/2" = 1'-0"

3



6
E602.00 SCALE: 1/2" = 1'-0"

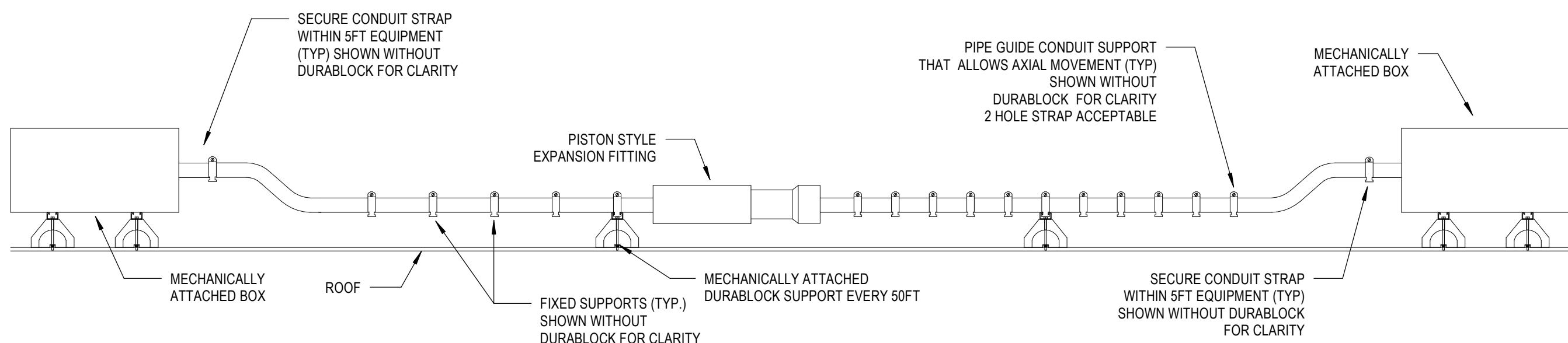
4



- NOTES:
1. SIDE OR BOTTOM ENTRY INTO ENCLOSURE ONLY
 2. PV WIRE SHALL BE SUPPORTED PER NEC (i.e. WITHIN 12" OF STRAIN RELIEF)
 3. NO UV EXPOSURE, TRANSITION TO ONLY TAKE PLACE UNDER COVER

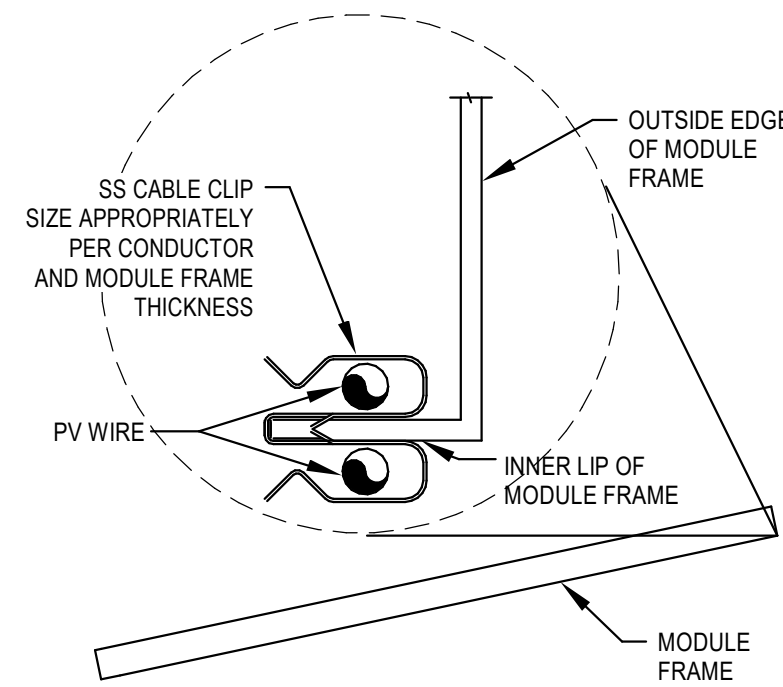
9
E602.00 SCALE: 1/2" = 1'-0"

5



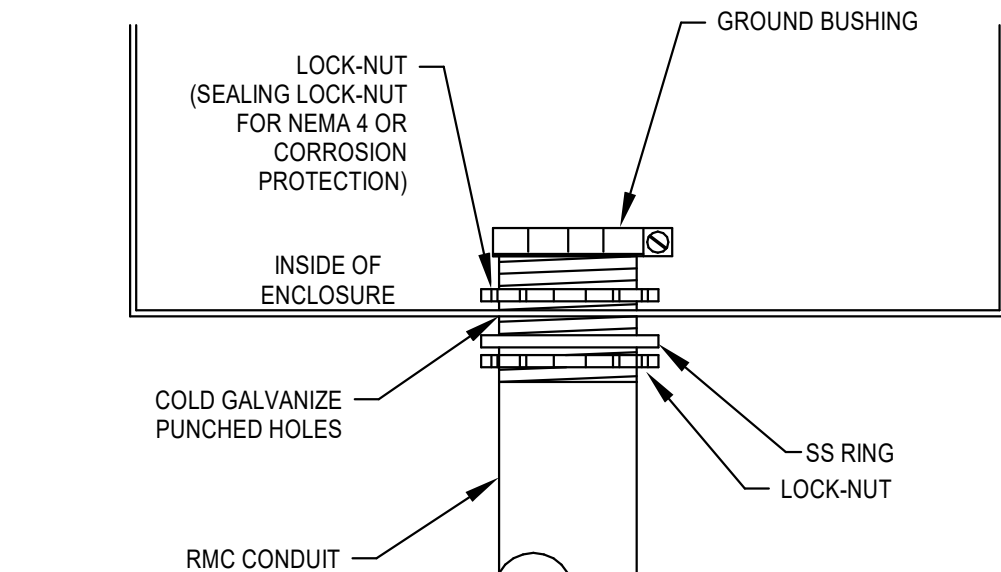
10
E602.00 SCALE: 3/4" = 1'-0"

2



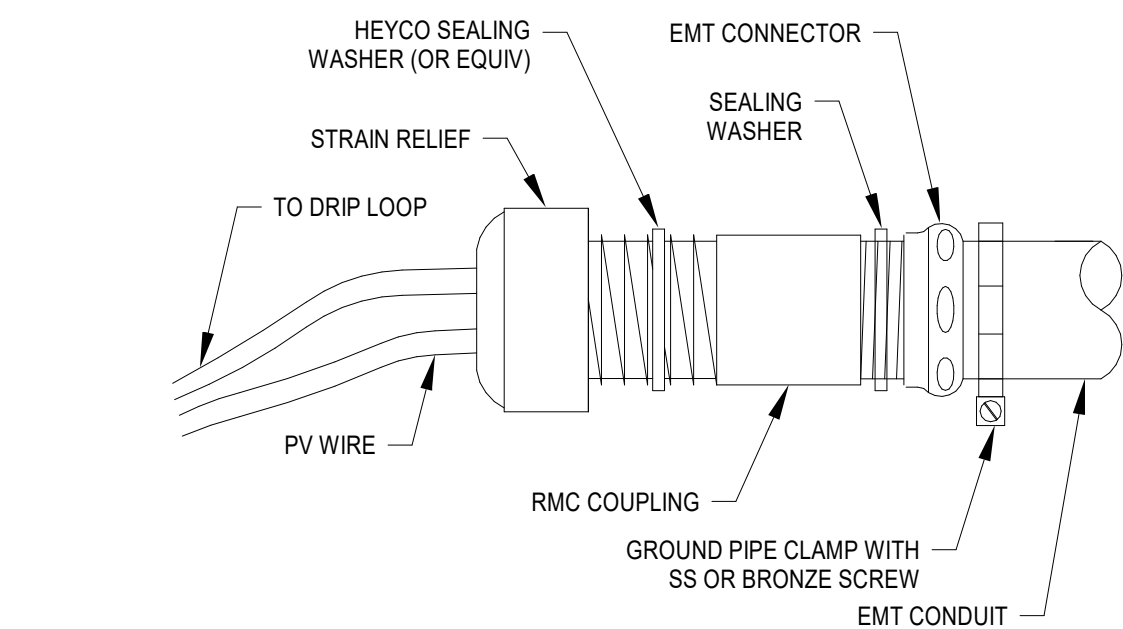
- NOTES:
1. ALL MODULE LEADS MUST BE CLIPPED TO THE MODULE FRAME IN AN ORDERLY FASHION AND HELD UP OFF THE ROOF SURFACE WITH SS CABLE CLIPS
 2. PROVIDE 3 CLIPS PER MODULE (2 CLIPS MIN)
 3. ALLOW SUFFICIENT SLACK IN LONG WIRE RUNS TO PREVENT BINDING OR TENSION DUE TO THERMAL CONTRACTION

2
E602.00 SCALE: 1/2" = 1'-0"



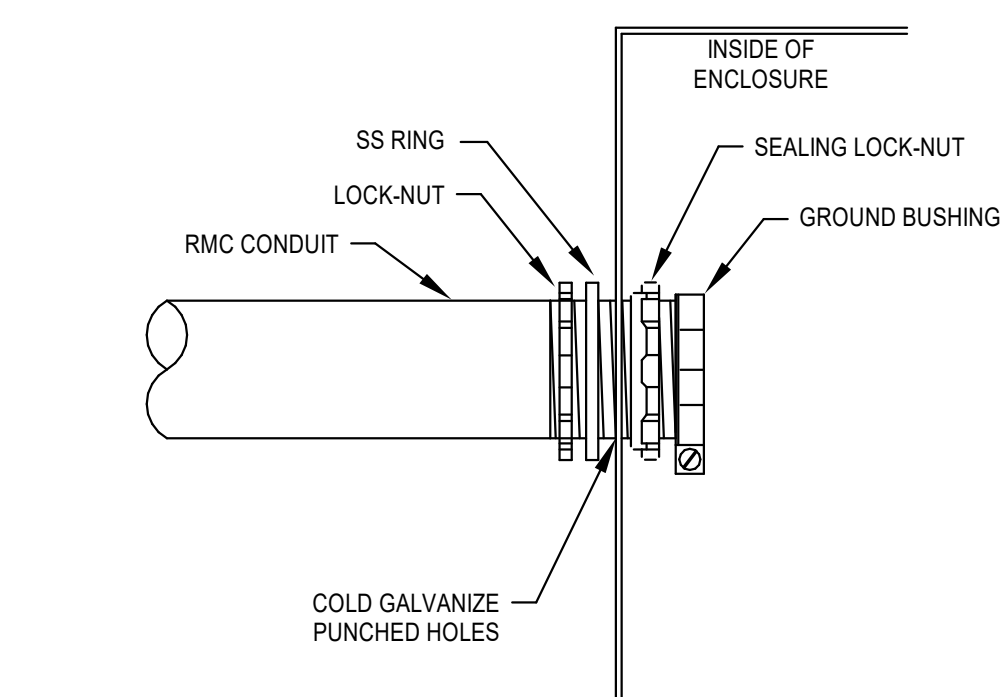
- NOTE:
1. FOR ENTRY INTO PLASTIC BOXES "LONG THROAT" CONDUIT FITTINGS SHALL BE USED SO THAT A SEALING RING, LOCKNUT, AND GROUND BUSHING CAN BE INSTALLED

7
E602.00 SCALE: 1/2" = 1'-0"



- NOTES:
1. NO LAXX SHOULD BE PLACED BETWEEN THE CONDUIT AND THE CLAMP TO PREVENT GALV/AN/C CORROSION
 2. PV WIRE SHALL BE SUPPORTED PER NEC (i.e. WITHIN 12" OF STRAIN RELIEF)
 3. NO UV EXPOSURE, TRANSITION TO ONLY TAKE PLACE UNDER COVER

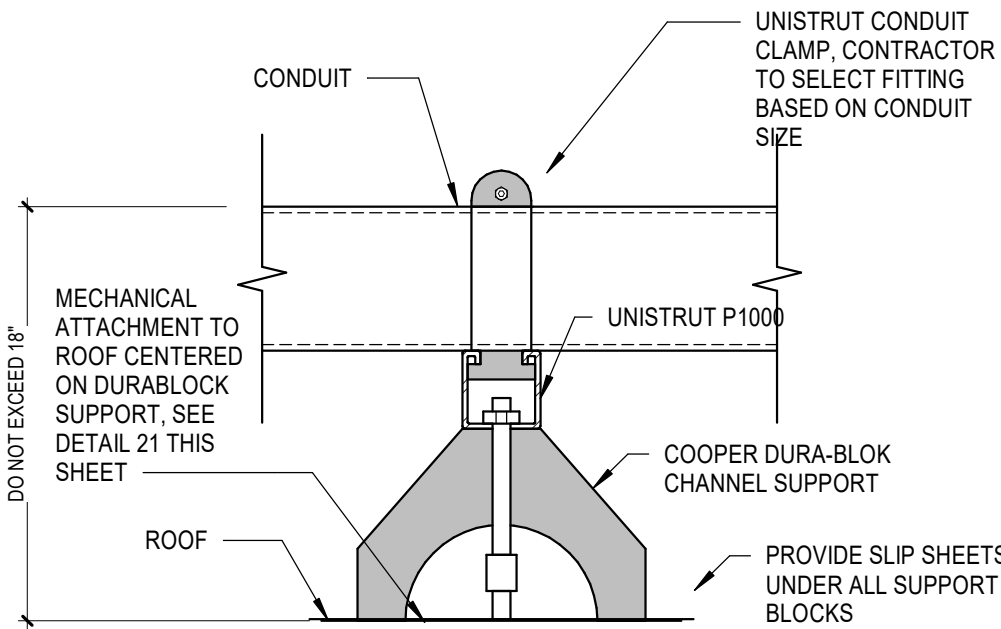
5
E602.00 SCALE: 1/2" = 1'-0"



- NOTE:
1. FOR ENTRY INTO PLASTIC BOXES "LONG THROAT" CONDUIT FITTINGS SHALL BE USED SO THAT A SEALING RING, LOCKNUT, AND GROUND BUSHING CAN BE INSTALLED

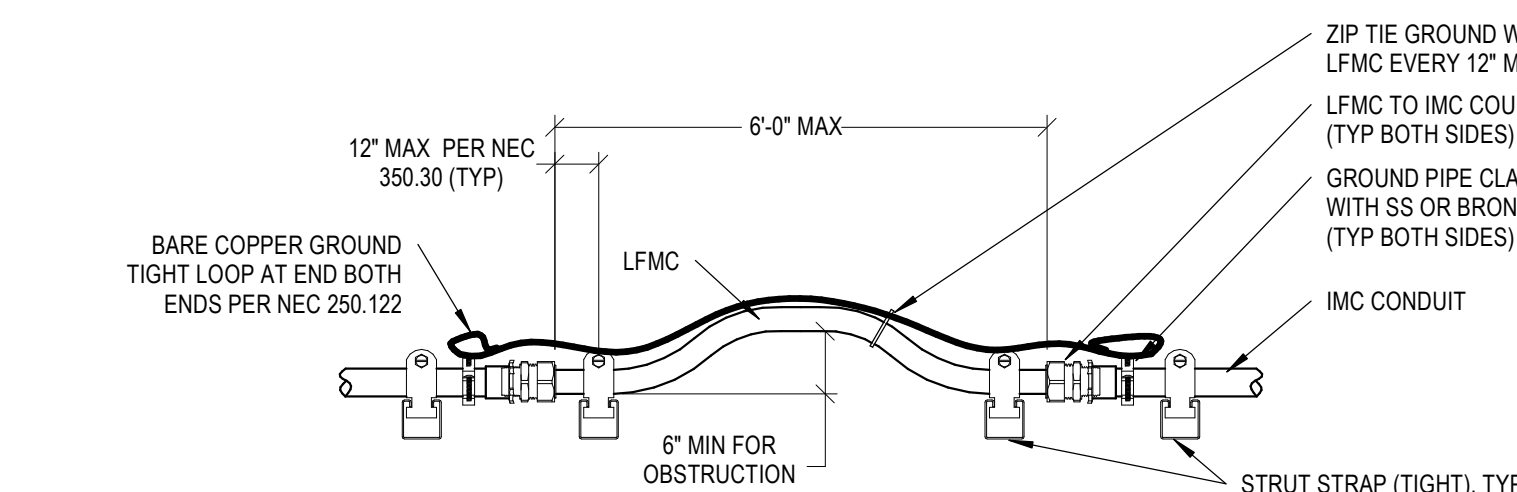
8
E602.00 SCALE: 1/2" = 1'-0"

MANUFACTURER	PART NO.	HEIGHT (IN)	WIDTH (IN)	CLIP DEPTH (IN)	CLIP DEPTH (IN) RAIL	MATERIAL
NINE FASTENER	DCX-2453A	1.55	0.38	0.44	1.20	301 SS
NINE FASTENER	DCS-1414	1.52	0.38	0.57	1.20	301 SS
NINE FASTENER	DCS-1306	0.73	0.38	0.44	0.66	410 SS
NINE FASTENER	DCS-1307	0.74	0.38	0.44	0.38	410 SS



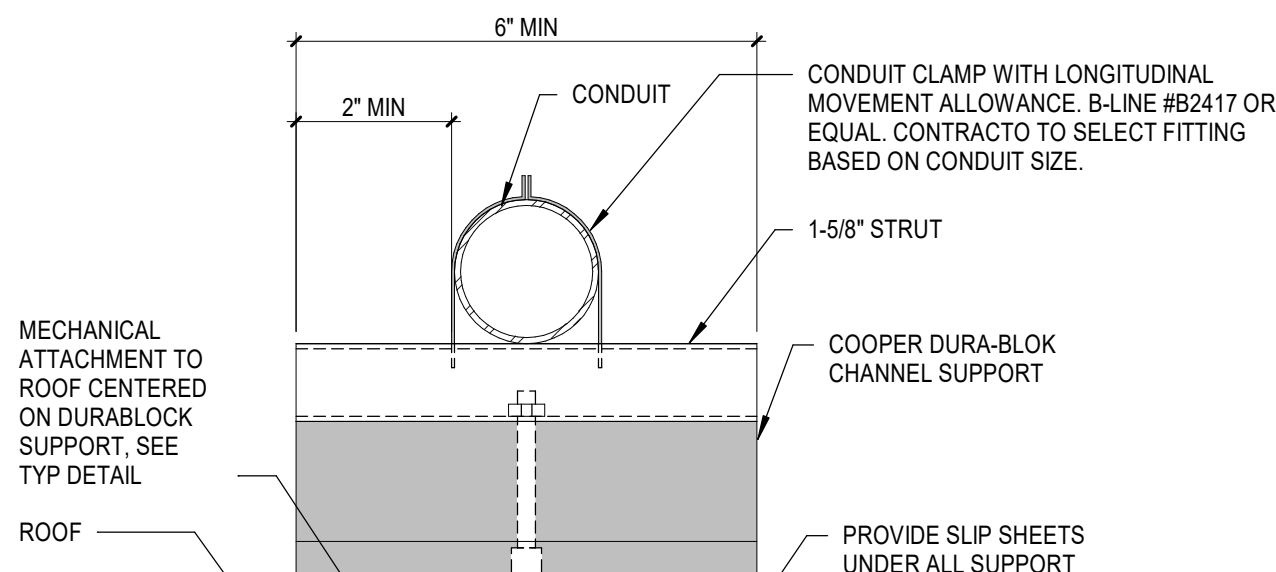
- NOTE:
- WHERE CONDUITS ARE ADJACENT TO THE RACKING SYSTEM THEY ARE TO BE SUPPORTED FROM THE RACKING SYSTEM.
- PROVIDE MECHANICAL ATTACHMENT FOR CONDUITS THAT ARE NOT ADJACENT TO THE RACKING SYSTEM. WITHIN 5' OF EQUIPMENT AND 90° BENDS AND AT 50' OC MAX OTHERWISE

11
E602.00 SCALE: 3" = 1'-0"



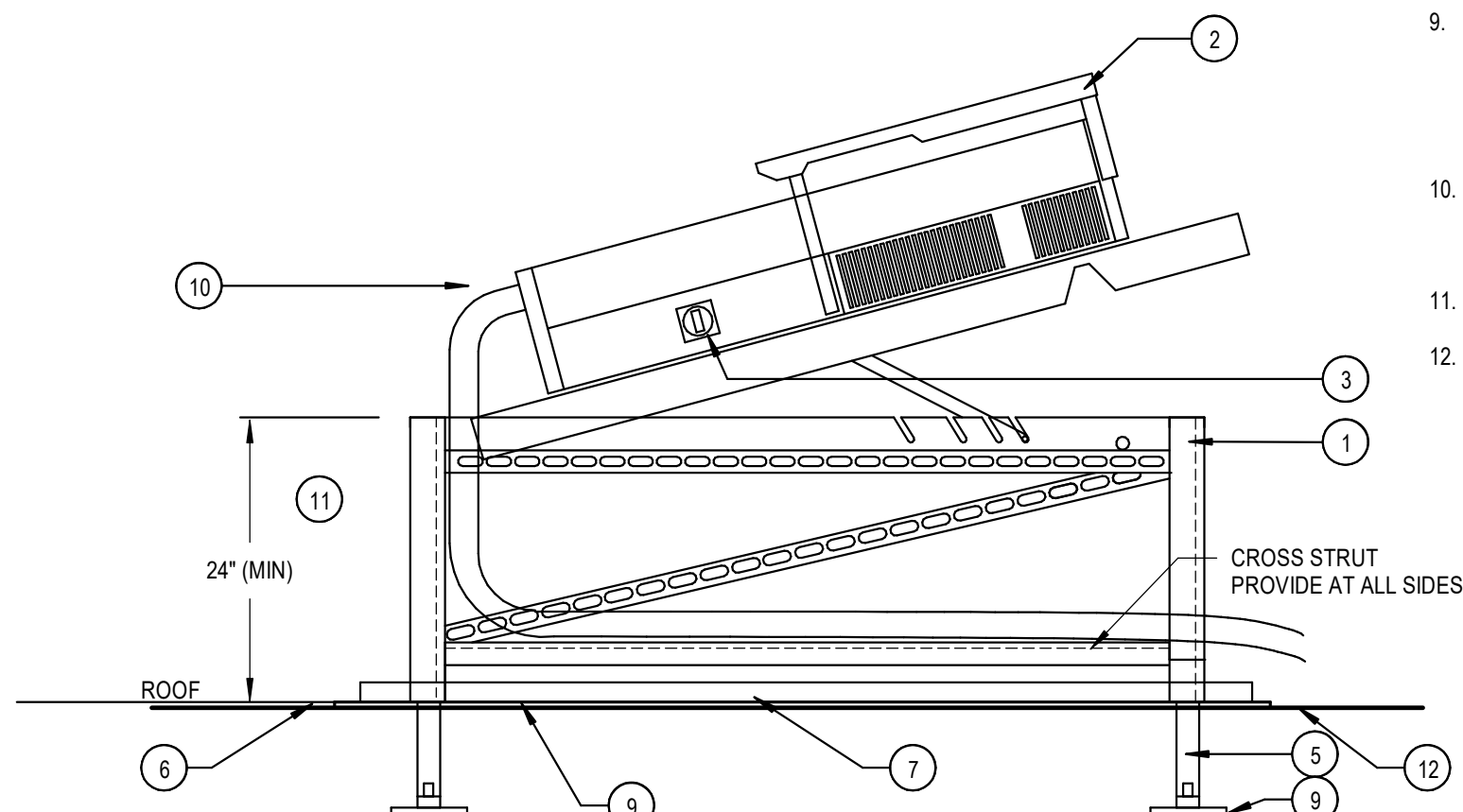
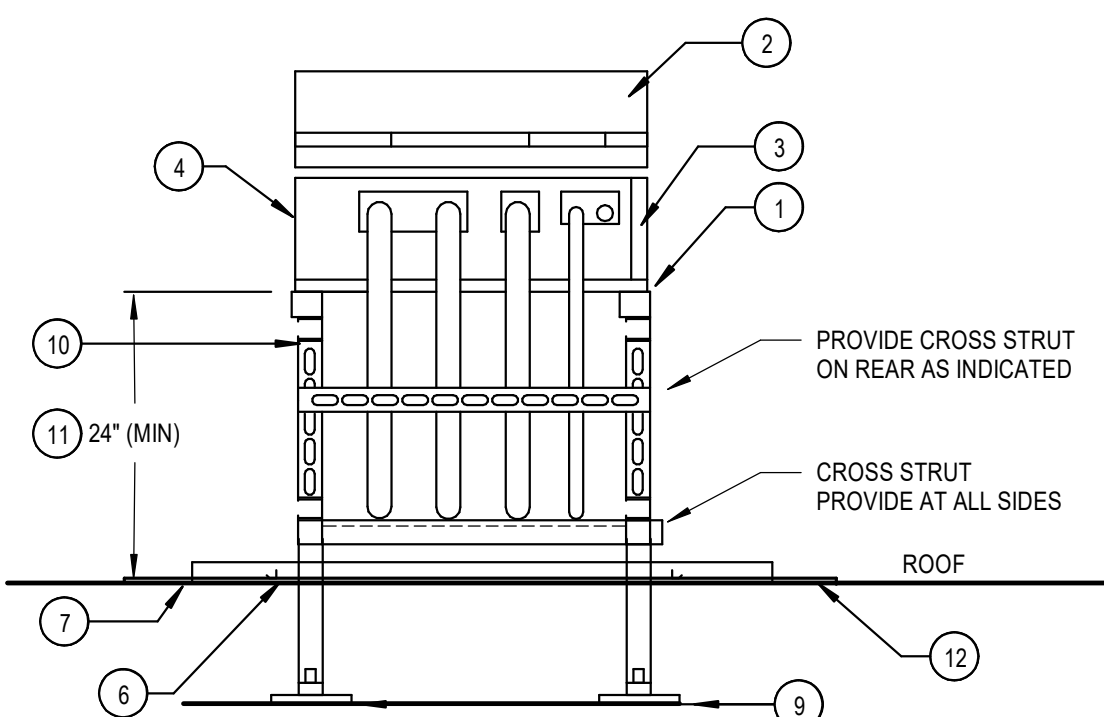
- NOTES:
1. APPLICABLE FOR ALL CONDUITS THAT CROSS ANY BUILDING EXPANSION JOINT.
 2. LFMC TO NOT TOUCH ROOF SURFACE
 3. MAINTAIN 3-1/2" MIN CLEAR FROM ROOF SURFACE
 4. FOR EXPANSION, KEEP STRUT STRAPS ON ONE SIDE LOOSE
 5. REFER TO NEC 300.7(B) FOR I/C FOR EXPANSION/CONTRACTION REQUIREMENTS
 6. INSTALL BASED ON TEMPERATURE AT TIME OF INSTALLATION

4
E602.00 SCALE: 1 1/2" = 1'-0"



- NOTE:
- WHERE CONDUITS ARE ADJACENT TO THE RACKING SYSTEM THEY ARE TO BE SUPPORTED FROM THE RACKING SYSTEM.
- PROVIDE MECHANICAL ATTACHMENT FOR CONDUITS THAT ARE NOT ADJACENT TO THE RACKING SYSTEM. WITHIN 5' OF EQUIPMENT AND 90° BENDS AND AT 50' OC MAX OTHERWISE

12
E602.00 SCALE: 3" = 1'-0"



13
E602.00 SCALE: 1/2" = 1'-0"

KEY NOTES

1. PROVIDE ROOFTOP MOUNTING STRUCTURE FOR INVERTER, BENTEK #BTK-IPR-AL, TILT INVERTER AT 15 DEGREES FROM HORIZONTAL PER MANUFACTURERS INSTRUCTIONS. COORDINATE WITH MANUFACTURER FOR EXACT MOUNTING CONFIGURATION FOR INVERTER.
2. INSTALL INVERTER SHADING ACCESSORY. SHADING ACCESSORY FURNISHED WITH INVERTER. INVERTER FURNISHED BY REC SOLAR.
3. INTEGRAL DC DISCONNECT LOCATED ON SIDE OF UNIT.
4. INTEGRAL AC DISCONNECT LOCATED ON SIDE OF UNIT.
5. 1.5" GALVANIZED SQUARE TUBE GUARDRAIL WITH REINFORCED FLUID APPLIED MEMBRANE FLASHING.
6. PROVIDE A SACRIFICIAL PROTECTIVE MATERIAL PER ROOFING MANUFACTURER UNDER ENTIRE FOOTPRINT OF THE INVERTER.
7. PROVIDE FIRE-RESISTANT, NON-COMBUSTIBLE BARRIER (SUCH AS METAL OR CEMEBER BOARD SANDWICHED BETWEEN SLIP SHEETS) BETWEEN THE INVERTER AND ROOFTOP SURFACE. FOOTPRINT OF BARRIER SHALL EXCEED 12" BEYOND THE PERIMETER OF THE INVERTER RACKING.
8. MAINTAIN WORKING CLEARANCE IN FRONT OF INVERTER RACK. REFER TO DETAIL 4 THIS SHEET.
9. MECHANICALLY FASTEN TO ROOF. TYPICAL MECHANICAL ANCHORAGE (SEE DETAIL) WITH 3/8" STAINLESS STEEL NUT AND 3/8"x1" OD STAINLESS STEEL FLAT WASHER. PROVIDE (4) TOTAL ANCHORS PER INVERTER, ONE IN EACH CORNER OF STRUCTURE. ANCHORS SHALL NOT BE THROUGH DURABLOCK AND SHALL BE DIRECTLY TO LOWEST UNISTRUT RAILS. ANCHORS CAN BE TWO TO A STRUT ON OPPOSITE ENDS (AS SHOWN) OR ONE PER STRUT OFFSET TOWARDS CORNERS.
10. INVERTER CONDUITS. SECURE TO STRUT. USE 45-DEGREE AND/OR 90-DEGREE CONNECTORS AS NECESSARY SO THAT CONDUITS DON'T PROTRUDE MORE THAN 6-INCHES INTO WORKING SPACE. SEAL INTERIOR OF CONDUITS TO PREVENT MOISTURE FROM ENTERING INVERTER. POLYWATER FST OR EQUAL.
11. ELEVATE INVERTER MOUNTING RACK 24" ABOVE ROOF PER AMAZON REQUIREMENTS VIA UNISTRUT RACK.
12. PROVIDE PERMANENT PROTECTIVE WALK PADS AROUND THE INVERTER. PADS SHALL RUN THE FULL WIDTH OF THE INVERTER RACKING AND EXTEND A MINIMUM OF 30" FROM THE EQUIPMENT FACE. PADS SHALL NOT INTERFERE WITH WATER SHED OR CREATE LOCATIONS OF PONDING

GENERAL NOTES

- A. COMPLY WITH ROOF MANUFACTURERS WARRANTY REQUIREMENTS FOR PROTECTION OF THE ROOF MEMBRANE.
- B. SEE ARCHITECTURAL DRAWINGS FOR WATERPROOFING.

1

LUMINAIRE SCHEDULE																		
LUMINAIRE CRITERIA			PRODUCT INFORMATION			SOURCE				ELECTRICAL INFORMATION				ADDITIONAL INFORMATION				
ID TAG	DESCRIPTION	FINISH	MANUFACTURER (DESIGN BASIS)	MODEL OR SERIES	ALTERNATE MANUFACTURERS	LAMP	DELIVERED LUMENS (MIN)	PER FT	COLOR TEMP (CCT)	CRI	DIMMING TYPE	POWER SUPPLY	VOLTAGE	WATTAGE (MAX)	PER FT	MOUNTING	ACCESSORIES AND OTHER REQUIREMENTS	NOTES BELOW
SW12	SITE AREA LIGHT, LOW-PROFILE WALL-MOUNT, 11" WIDE, 3" DEEP, ES DISTRIBUTION TYPE I, FULL CUTOFF/DARK SKY COMPLIANT, DIE-CAST ALUMINUM MAIN BODY	SEE NOTES	ACUTY (LITHONIA)	WPX LED P1 30K MVOLT PE DBLXD	EATON (McGRW EDISON), HUBBELL (BEACON), PHILIPS (GARDCO), VISIONAIRE, CREE, KM, GE-LIGHTING, NLS	LED	2900		3000K	70	(NONE)	INTEGRAL DRIVER DRIVE CURRENT 700mA	120	24		EXTERIOR WALL-MOUNT, 8'-0" AFF, CENTERED ABOVE DOOR	IP66 RATING, INTEGRAL SPD, MOUNTING PLATE WITH ELECTRICAL BOX RECESSED IN THE EXTERIOR WALL AS NECESSARY PER MFR'S SPECIFICATIONS, INTEGRAL PHOTOCELL OPTION	1,2
GENERAL NOTES:											SPECIFIC NOTES:							
A. CATALOG NUMBERS INDICATED IN THIS SCHEDULE SHALL NOT BE REGARDED AS COMPLETE OR ENTIRELY ACCURATE, HENCE THE USE OF AN ASTERISK (*) IN THE SERIES NUMBER. THESE NUMBERS ARE PROVIDED ONLY TO IDENTIFY THE STYLES, QUALITIES, AND FEATURES OF THE PRODUCTS THAT REPRESENT THE BASIS OF DESIGN. THIS CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR DETERMINING THE COMPLETE AND ACCURATE CATALOG NUMBER BASED ON THE ACTUAL APPLICATION, DESCRIPTION, NOTES, PLANS, AND PROJECT MANUAL SPECIFICATIONS. RECONCILE EACH FIXTURE SELECTION, INCLUDING ITS MOUNTING OPTIONS AND ACCESSORIES, WITH ITS INTENDED APPLICATION AS CONVEYED THROUGHOUT THE ENTIRETY OF THE CONTRACT DOCUMENTS. REFERENCE THE CEILING PLANS INCLUDED IN THE ARCHITECTURAL DRAWINGS TO DETERMINE FIXTURE MOUNTING ACCESSORIES CORRESPONDING TO SPECIFIED CEILING TYPES. PAI = PAINTED AFTER FABRICATION.											1. ARCHITECT TO SELECT FROM MANUFACTURER'S STANDARD COLORS DURING SHOP DRAWING SUBMITTAL REVIEW. 2. APPLY SEALANT BETWEEN MOUNTING PLATE AND WALL ON EXTERIOR FIXTURES TO ENSURE WATERTIGHT J-BOX. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT AND MOUNTING HEIGHTS.							
B. PRODUCTS BY APPROVED ALTERNATE MANUFACTURERS MUST BE EQUAL OR SUPERIOR TO THE PRODUCT LISTED AS THE BASIS OF DESIGN. THE WORD "EQUAL" SHALL BE DEFINED UNDER THIS CONTRACT AS A PRODUCT THAT HAS A QUALITY OF DESIGN, CONSTRUCTION, AND PERFORMANCE THAT IS EQUIVALENT OR SUPERIOR TO THAT OF THE SPECIFIED DESIGN BASIS.																		

2

Project:

FIT HAFT THEATER - ROOF REPLACEMENT & PV PANELS

Location:

243 WEST 27TH STREET, NEW YORK, NY 10001...

Date:

02/26/2025

DC VOLTAGE DROP CALCULATIONS

Feeder Data		Type	Size (AWG/Kcmil)	Wire Type	Length (ft)	# Parallel Runs	System Voltage (Vmp)	Temperature (°C)	Amps (Imp)	Voltage Drop	%VD
From	To										
Farthest String	INV1-01	Cu	10	Stranded	55	1	711.04	75	14	1.916	0.269%
Farthest String	INV1-02	Cu	10	Stranded	57	1	711.04	75	14	1.985	0.279%
Farthest String	INV1-03	Cu	10	Stranded	60	1	711.04	75	14	2.090	0.294%
Farthest String	INV2-01	Cu	10	Stranded	55	1	711.04	75	14	1.916	0.269%
Farthest String	INV2-02	Cu	10	Stranded	73	1	711.04	75	14	2.543	0.358%
Farthest String	INV4-01	Cu	10	Stranded	65	1	711.04	75	14	2.264	0.318%
Farthest String	INV4-02	Cu	10	Stranded	62	1	711.04	75	14	2.159	0.304%
Farthest String	INV4-03	Cu	10	Stranded	62	1	711.04	75	14	2.159	0.304%
Farthest String	INV4-04	Cu	10	Stranded	81	1	711.04	75	14	2.821	0.397%

* Voltage used is worst case @ high temperature per string voltage calculation

3

4

5

X:\FIT\19071 - FIT AS-Needed Contract\19071-164 Feldman Haft Roof\19071-164 EPM Dwgs\19071-164 ACM Schem\19071-164_ACM01 Schem Haft Roof.dwg
2025/01/15 12:22 PM By: Ana Recalde

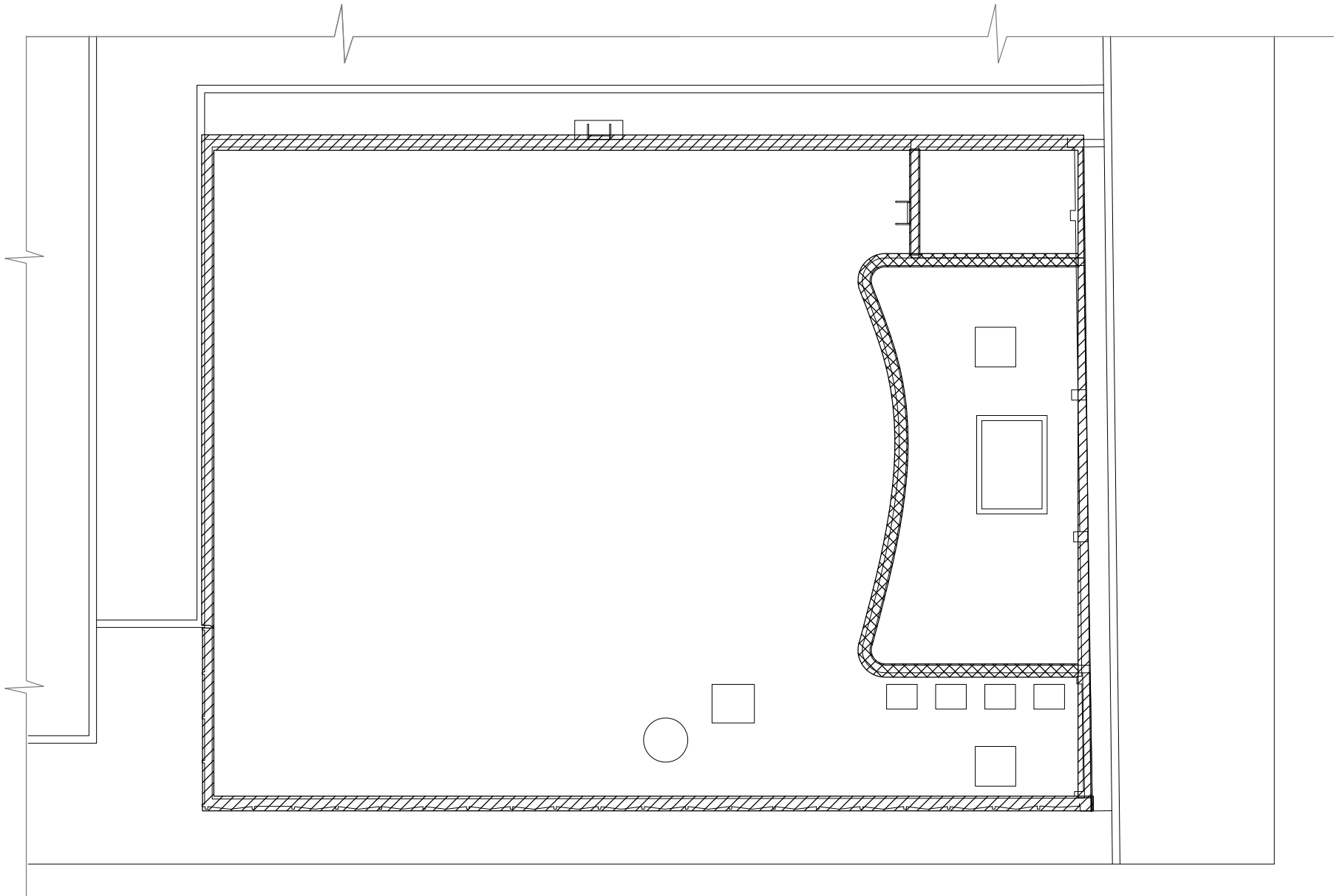


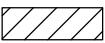
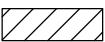
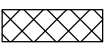
Table 1
Summary of Identified Asbestos Containing Materials
FIT Haft Roof
Fashion Institute of Technology

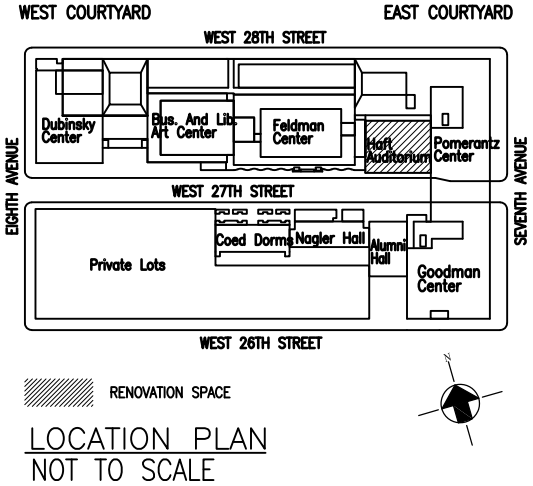
Material Description	Material Locations	Asbestos Quantity	Friability	Condition
Remnant Beige Asbestos Caulking on Metal Coping Cap	Main Roof, South and Southwest Parapet Metal Coping Cap (150 linear feet)	7 Square Feet	Non-Friable	Fair
Gray Caulking with Remnant Beige Caulking on Metal Coping Cap	Main Roof, North and West Parapet Metal Coping Cap (186 linear feet)	8 Square Feet	Non-Friable	Fair
Gray Caulking on Metal Coping Cap	Upper Roof Metal Coping Cap and Middle Roof Metal Coping Cap (246 linear feet)	11 Square Feet	Non-Friable	Fair
Flashing Tar on Brick Façade	Haft Auditorium Brick Façade of Connector Roof Area	424 Square Feet	Non-Friable	Fair
Roofing Layers	Haft Auditorium Connector Roof Area	160 Square Feet	Non-Friable	Fair
Roof Flashing on Pomerantz Building	Haft Auditorium Connector Roof Area	80 Square Feet	Non-Friable	Fair
Roof Flashing on Haft Auditorium Brick Façade	Haft Auditorium Connector Roof Area	100 Square Feet	Non-Friable	Fair
Total Quantity of Asbestos Materials		790 Square Feet		

Conclusions and Recommendations

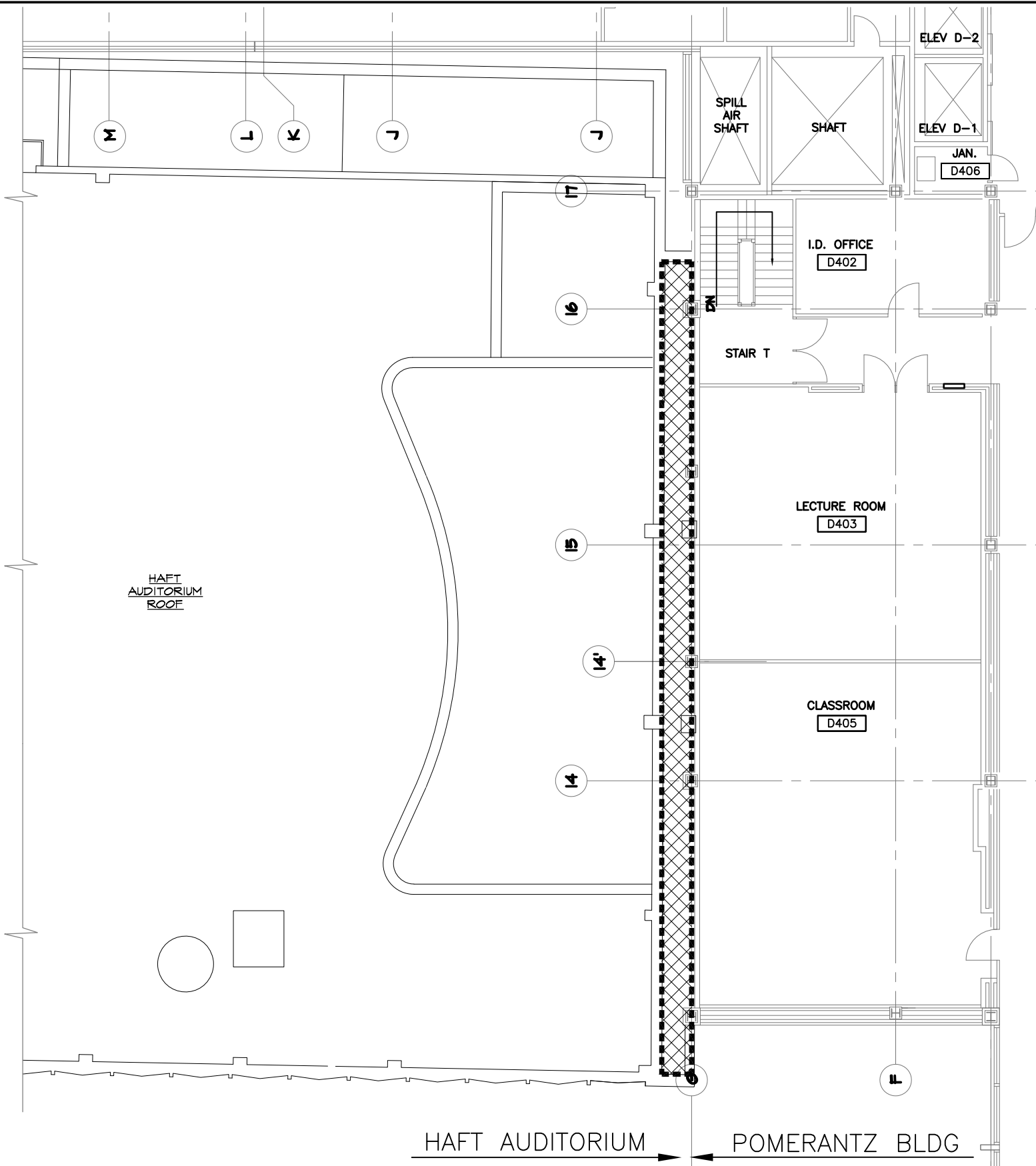
Asbestos
Laboratory analysis has confirmed that the old beige caulking and the gray caulking (with remnant old beige caulking) on the parapet metal coping cap contains asbestos.

Laboratory analysis has also confirmed that the roofing layers and parapet flashing tar of the Haft / Pomerantz Connector Roof contain asbestos.

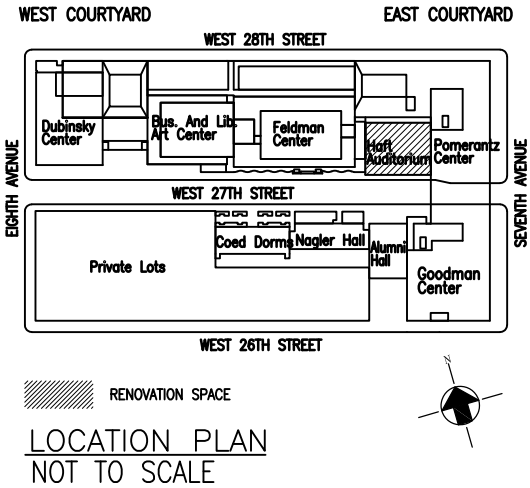
HAFT AUDITORIUM ROOF ASBESTOS ABATEMENT						
SYMBOL	DESCRIPTION OF MATERIAL	LOCATION	FRIABILITY	NYC DEP TITLE 15 REMOVAL METHOD	LINEAR FEET	SQUARE FEET
	REMNANT BEIGE ASBESTOS CAULKING ON METAL COPING CAP	MAIN ROOF, SOUTH AND SOUTHWEST PARAPET METAL COPING CAP	NON-FRIABLE	NYC DEP SECTION 1-109 VERTICAL EXTERIOR SURFACE PROCEDURE		7
	GRAY CAULKING WITH REMNANT BEIGE CAULKING ON METAL COPING CAP	MAIN ROOF, NORTH AND WEST PARAPET METAL COPING CAP				8
	GRAY CAULKING ON METAL COPING CAP	UPPER ROOF METAL COPING CAP AND MIDDLE ROOF METAL COPING CAP				26
TOTAL						41



X:\FIT\19071-164 AS-Needed Contract\19071-164 Feldman Haft Roof\19071-164 EPM Dwgs\19071-164 ACM Schem\19071-164_ACM02 SCHEM.dwg
2024/10/02 7:29 AM By: Milkenia Horton



POMERANTZ – HAFT CONNECTOR ROOF					
ASBESTOS ABATEMENT					
SYMBOL	LOCATION & DESCRIPTION	FRIABILITY	NYC DEP TITLE 15 REMOVAL METHOD	LINEAR FEET	SQUARE FEET
	FLASHING TAR ON HAFT AUDITORIUM BRICK FACADE	NON-FRIABLE	NYC DEP SECTION 1-109 VERTICAL EXTERIOR SURFACE PROCEDURE		424
	ROOFING LAYERS	NON-FRIABLE	NYC DEP SECTION 1-107 FOAM PROCEDURE FOR ROOF REMOVAL		160
	ROOF FLASHING ON POMERANTZ BUILDING	NON-FRIABLE	NYC DEP SECTION 1-107 FOAM PROCEDURE FOR ROOF REMOVAL		80
	ROOF FLASHING ON HAFT AUDITORIUM BRICK FACADE	NON-FRIABLE	NYC DEP SECTION 1-107 FOAM PROCEDURE FOR ROOF REMOVAL		100
TOTAL					764



DRAWN BY:	MH/AR	DATE:	OCTOBER, 2024
CHECKED BY:	TZ	FILENAME:	19071-164
APPR'VD BY:	AS	SCALE:	NOT TO SCALE
PATH: FIT AS-Needed Contract\19071-164 Feldman Haft Roof			

CLIENT:

FASHION INSTITUTE OF TECHNOLOGY
340 8TH AVENUE
NEW YORK, NY 10001

Figure Name:

HAFT-POMERANTZ CONNECTION
ASBESTOS MATERIAL LOCATION SCHEMATIC

PROJECT LOCATION:

HAFT THEATER AUDITORIUM BUILDING
220 WEST 27TH STREET, NEW YORK, NY 10001

Figure No:

ACM-02
SHEET 2 OF 2