

SECTION 00 01 01
PROJECT TITLE PAGE

PROJECT MANUAL FOR
ROOF REPLACEMENT

**YORK COUNTY EMERGENCY
OPERATIONS CENTER**

149 WEST BLACK STREET
ROCK HILL, SOUTH CAROLINA 29730



03-19-2026

DWW Architects

PREPARED BY:



REI PROJECT NO. R25CLT-130

1927 J.N. PEASE PLACE, SUITE 201, CHARLOTTE, NC 28262
SOUTH CAROLINA COA 1906

SECTION 00 01 07

SEALS PAGE

PART 1 GENERAL

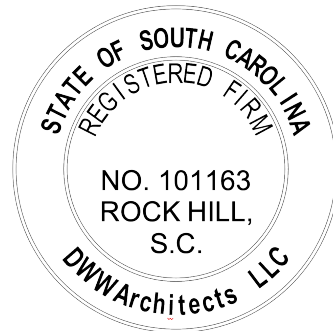
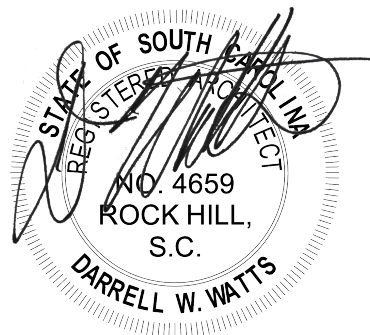
1.1 SUMMARY

- A. Design Firm for DWW Architects Serving as Architect for York County Emergency Operations Center with Project Manual dated 03-19-2026:
1. REI Engineers, Inc., 1927 J.N. Pease Place, Suite 201, Charlotte, NC 28262.
 2. South Carolina Certificate of Authorization 1906

Professional Engineer



Professional Architect - DWW Architect



END OF SECTION

SECTION 00 01 10

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- J. 00 63 13 - Request for Interpretation
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END OF SECTION

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PART 1 GENERAL

1.1 SUMMARY

A. The following drawings dated 03-19-2026 are included as part of the Contract Documents:

1. G-001 Cover
2. XR101 Roof Plan
3. XR102 Demolition Plan
4. XR301 Roof Systems
5. XR501 Details
6. XR502 Details

END OF SECTION

SECTION 00 31 26.23

EXISTING ASBESTOS INFORMATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing for the presence of asbestos containing materials has been conducted. Results of the testing are for information and bidding purposes only. Contractor is responsible for verification of field conditions affecting performance of this work and for determining the extent or presence of asbestos containing materials.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 ENCLOSURES

- A. The attached Asbestos Sampling Test Results are provided.



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com> / charlottelab@emsl.com

EMSL Order: 412513398

Customer ID: REIE25

Customer PO:

Project ID:

Attention: Terrence Rayfield

REI Engineers

1927 JN Pease Place

Suite 201

Charlotte, NC 28262

Project: York Co Emergency Ops Center R25CLT-130

Phone: (704) 596-0331

Fax: (704) 596-0533

Received Date: 12/22/2025 8:00 AM

Analysis Date: 12/24/2025 - 12/26/2025

Collected Date:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1	TC1 - Black Asphalt	Brown/Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
412513398-0001 Result includes a small amount of inseparable attached insulation.					
2	TC2 - Black Asphalt	Brown/Black Non-Fibrous Heterogeneous	2% Cellulose	<1% Ca Carbonate 98% Non-fibrous (Other)	None Detected
412513398-0002 Result includes a small amount of inseparable attached insulation.					
3-Insulation	TC2 - Black Asphalt	Brown Fibrous Homogeneous	85% Cellulose	10% Perlite 5% Non-fibrous (Other)	None Detected
412513398-0002A					
4	TC8 - Wall Panel	Brown/White Non-Fibrous Homogeneous		3% Quartz 12% Ca Carbonate 70% Non-fibrous (Other)	15% Chrysotile
412513398-0003					
5	TC9 - Wall Panel				Positive Stop (Not Analyzed)
412513398-0004					

Analyst(s)

David Zalewski (2)

Mikayla Harlowe (2)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 12/26/2025 15:03:43



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com> / charlottelab@emsl.com

EMSL Order: 412513398

Customer ID: REIE25

Customer PO:

Project ID:

Attention: Terrence Rayfield
REI Engineers
1927 JN Pease Place
Suite 201
Charlotte, NC 28262

Project: York Co Emergency Ops Center R25CLT-130

Phone: (704) 596-0331

Fax: (704) 596-0533

Received Date: 12/22/2025 8:00 AM

Analysis Date: 01/05/2026

Collected Date:

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
3 412513398-0005	TC3 - Black Asphalt	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Sarah Breneman (1)

Lee Plumley, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. EMSL recommends that samples reported as none detected or <1% undergo additional analysis via PLM to avoid the possibility of false negatives.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 01/05/2026 12:55:35

SECTION 00 43 13

BID BOND FORM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Utilize AIA Document A310 - 2010 Bid Bond Form. Document is incorporated by reference, Contractor is responsible to obtain a properly licensed form for use on the project.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 BID SECURITY

- A. In lieu thereof, each bid may be accompanied by a deposit of cash or a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation (FDIC) in an amount equal to not less than 5% of the gross amount of the bid.
- B. Bid Bond shall be signed by the Bidder and notarized.
- C. If the successful Bidder fails to execute the contract within 10 days after award, the above deposit will be retained by the Owner on the bid bond executed on liquidated damages.

END OF SECTION

SECTION 00 60 00

PROJECT FORMS

PART 1 GENERAL

1.1 SUMMARY

A. The following documents are hereby incorporated into the Contract Documents by reference:

1. AIA Documents: Properly licensed forms are available for purchase from the American Institute of Architects at www.aia.org/documents. Utilize current version of each document.
 - a. G701 Change Order Form
 - b. G702 Application and Certificate for Payment
 - c. G703 Continuation Sheet
 - d. G704 Certificate of Substantial Completion
 - e. G706 Contractor's Affidavit of Payment of Debts and Claims
 - f. G706A Contractor's Affidavit of Payment of Release of Liens
 - g. G707 Consent of Surety to Final Payment
 - h. G710 Architect's Supplemental Instruction Form
 - i. G714 Construction Change Directive

B. The following documents are included in the Project Manual:

1. Section 00 61 13.13 - Performance Bond Form
2. Section 00 61 13.16 - Payment Bond Form
3. Section 00 62 33 - Roof Manufacturer's Acknowledgment
4. Section 00 63 13 - Request for Interpretation
5. Section 00 63 25 - Substitution Request Form
6. Section 00 63 55 - Change Proposal Form
7. Section 00 65 36 - Contractor's Warranty
8. Section 00 65 37 - Asbestos Free Warranty

END OF SECTION

SECTION 00 61 13.13

PERFORMANCE BOND FORM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Utilize AIA Document A312 - 2010 Performance Bond. Document is incorporated by reference, Contractor is responsible to obtain a properly licensed form for use on the project.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 GENERAL

- A. A Performance Bond in the amount of the contract is required.
- B. Include the cost of providing bonds in the Base Bid.
- C. Deliver the required bonds to the Owner no later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section.
- D. Write bonds on the forms contained or referenced herein.
- E. Write bond in the amount of the Contract Sum.
- F. Date bonds on the date of the Contract.
- G. Issue bonds by sureties and execute by an attorney-in-fact, on behalf of the surety, who is authorized to do business in the State of South Carolina.
- H. Affix thereto a certified and current copy of the power of attorney.

END OF SECTION

SECTION 00 61 13.16

PAYMENT BOND FORM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Utilize AIA Document A312 - 2010 Payment Bond Form. Document is incorporated by reference, Contractor is responsible to obtain a properly licensed form for use on the project.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 GENERAL

- A. A Labor and Material Payment Bond in the amount of the contract is required.
- B. Include the cost of providing bonds in the Base Bid.
- C. Deliver the required bonds to the Owner no later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section.
- D. Write bonds on the forms contained or referenced herein.
- E. Write bond in the amount of the Contract Sum.
- F. Date bonds on the date of the Contract.
- G. Issue bonds by sureties and execute by an attorney-in-fact, on behalf of the surety, who is authorized to do business in the State of South Carolina.
- H. Affix thereto a certified and current copy of the power of attorney.

END OF SECTION

SECTION 00 62 33

ROOF MANUFACTURER'S ACKNOWLEDGMENT

PART 1 GENERAL

1.1 FROM:

- A. Roofing Contractor: _____
- B. Address: _____
- C. Phone: _____ Email: _____

1.2 FOR:

- A. Owner: York County
- B. Project: York County Emergency Operations Center
- C. REI Project No.: R25CLT-130
- D. Address: 149 West Black Street Rock Hill, South Carolina 29730

1.3 ACKNOWLEDGEMENT

- A. This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated 03-19-2026, the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures and specified external fire resistance rating outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions or exclusions to the Engineer through the contractor as otherwise outlined in the Advertisement or Invitation for Bids, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

1.4 EXECUTED BY:

- A. Manufacturer's Company Name: _____
- B. Designated Reviewer Name and Title: _____
- C. Signature: _____ Date: _____

END OF SECTION

SECTION 00 63 13
REQUEST FOR INTERPRETATION

PART 1 GENERAL

1.1 REQUEST FOR INTERPRETATION

- A. RFI No.: _____
- B. Project: York County Emergency Operations Center
- C. REI Project No. R25CLT-130
- D. Request Date: _____
- E. From: _____ (Company Name)

1.2 REFERENCE

- A. Specification Section: _____ Paragraph: _____
- B. Drawing Sheet: _____ Detail No(s): _____

1.3 DESCRIPTION OF REQUEST

- A. _____

- B. Signed by: _____
- C. Signature: _____

1.4 REI RESPONSE

- A. _____

- B. Attachments: _____

- C. Response Date: _____
- D. Signed by: Paul Whitley
- E. Signature: _____

SECTION 00 63 25
SUBSTITUTION REQUEST FORM

PART 1 GENERAL

1.1 SUBSTITUTION REQUEST INFORMATION

- A. Project: York County Emergency Operations Center
- B. REI Project No. R25CLT-130
- C. Request Date: _____

1.2 REFERENCE

- A. Specification Section: _____ Paragraph(s): _____

1.3 DESCRIPTION

- A. Manufacturer Name: _____
- B. Product Name: _____
- C. General Description of Substitution Request: _____

1.4 CERTIFICATION

- A. The undersigned certifies:
 - 1. Proposed substitution has been investigated and determined that it meets or exceeds the quality level of the specified product.
 - 2. Same warranty will be furnished for proposed substitution as for specified product.
 - 3. Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
 - 4. Proposed substitution does not affect dimensions and functional clearances.
 - 5. Payment will be made for changes to building design, including engineering design, detailing, and construction costs caused by the substitution.
 - 6. Contractor waives right to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.
- B. Submitted by (Print Name): _____
- C. Contractor Company Name: _____
- D. Signature: _____

1.5 ATTACHED SUPPORTING DATA

A. The following items are attached to this substitution request:

1. ☐ Product Data
2. ☐ Test Reports
3. ☐ Applicable Drawings
4. ☐ (_____)
5. ☐ (_____)

1.6 ENGINEERS ACTION

A. This substitution request is:

1. ☐ Approved
2. ☐ Approved as noted
3. ☐ Rejected - utilize specified materials
4. ☐ Rejected due too late submittal - utilized specified materials

B. Signed by: Paul Whitley

C. Signature: _____

END OF SECTION

SECTION 00 63 55
CHANGE PROPOSAL FORM

PART 1 GENERAL

1.1 CHANGE PROPOSAL FOR:

- A. Change Proposal No. _____
- B. Project: York County Emergency Operations Center
- C. REI Project No. R25CLT-130
- D. From (Contractor): _____
- E. Description of Change: _____

1.2 CHANGE BREAKDOWN

- A. Materials:
 - 1. Total direct cost of materials: \$ _____
 - 2. Overhead & profit on A1 (15% max.): \$ _____
 - 3. Sales tax: \$ _____
 - 4. Shipping & transportation: \$ _____
 - 5. Total Materials (A1+A2+A3+A4): \$ _____
- B. Labor:
 - 1. Total manhours: _____ mh at \$ _____ /hr. = \$ _____
 - 2. Overhead & profit on B1 (15% max.): \$ _____
 - 3. Total Labor (B1+B2): \$ _____
- C. Equipment Rental:
 - 1. Equipment Rental
 - 2. Overhead & profit on C1 (6% max.): \$ _____
 - 3. Total Equipment Rental (C1+C2): \$ _____
- D. Subcontractors:
 - 1. Subcontractors: \$ _____
 - 2. Overhead & profit on D1 (6% max.): \$ _____

3. Total Subcontractors (D1+D2): \$ _____
- E. Subtotal of Proposal (A5+B4+C3+D3): \$ _____
- F. Bonds (% of Subtotal (E)): \$ _____
- G. Total of Change Proposal (E+F): \$ _____
- H. Time Extension Request: _____ calendar days
- I. The Contractor agrees to perform the work outlined in this change proposal for the amount specified above in accordance with the Contract Documents if the work is authorized by the Owner.
1. Contractor Signature and Date: _____
2. Engineer Recommended Approval and Date: _____
3. Owner Approval and Date: _____

END OF SECTION

SECTION 00 65 36

CONTRACTOR'S WARRANTY

PART 1 GENERAL

1.1 WARRANTY

- A. Know all men by these presents, that we, _____
(Contractor), having installed roofing system, flashings and sheet metal on the York County
Emergency Operations Center under contract between York County and Contractor,
warrant to the Owner with respect to said work that for the period of 2 years from date of
substantial completion of _____, 20____, the work shall be watertight and
free from defects, provided however the following are excluded from this Warranty: 1)
defects or failures resulating from abuse by the Owner, 2) damages caused by fire,
tornado, hail, hurricane, acts of God, wars, vandalism, riots or civil commotion, and 3)
deficts in design involving failure of structural frame, load bearing walls, and/or foundations.
We agree that should any leaks occur in the work we will perform emergency repairs within
24 hours' notice and perform permanent repairs promptly in a manner to restore the work
to a watertight condition by methods compatible to the system, acceptable under industry
standards and general practice, and acceptable to the Manufacturer, all at no expense to
the Owner. We further agree that for the period specified below, we will make repairs at no
expense to the Owner to defects which may develop in the work in a manner compatible
to the system, acceptable under industry standards and general practice as established by
the Engineer and acceptable to the Manufacturer.
- B. We agree to attend one post construction field inspection no earlier than one month prior
to the Contractor's Warranty expiration date and to complete corrective actions requested
by Owner, Engineer, or Manufacturer at no additional cost to the Owner.

1.2 EXECUTED BY

- A. Contractor: _____
- B. Authorized Officer Name and Title: _____
- C. Signature: _____ Date: _____

1.3 NOTARIZED BY:

- A. I, _____ (print name), a Notary Public for
_____ County of _____ (State), do hereby
certify that _____ (officer listed above) personally
appeared before me this day and acknowledged the due execution of the foregoing
instrument. Witness my hand and official seal, this ____ day of _____, 20 ____.
My commission expires ____ of _____, 20 ____.
- B. Signed: _____

(OFFICIAL SEAL)

END OF SECTION

SECTION 00 65 37

ASBESTOS FREE WARRANTY

PART 1 GENERAL

1.1 FOR

- A. Owner: York County
- B. Project: York County Emergency Operations Center
- C. Project Address: 149 West Black Street Rock Hill, South Carolina 29730

1.2 WARRANTY

- A. Date of Substantial Completion: _____
- B. Know all men by these presents, that we, _____
(Contractor) having furnished labor, materials, equipment and/or supplies, removed existing roof system; installed new roof system and/or miscellaneous components; from, to and/or on the above referenced project under contract between the Owner and Contractor, warrant to Owner with respect to said work that no materials containing asbestos fibers were incorporated into the work, and that, to our knowledge and belief, no materials containing asbestos remain in or are covered by the work.
- C. Exceptions: _____ If there are no exceptions, state "None".

1.3 EXECUTED BY

- A. Contractor: _____
- B. Authorized Signing Officer Name: _____
- C. Authorized Signing Office Title: _____
- D. Signature: _____ Date: _____

1.4 NOTARIZED BY:

- A. I, _____ (print name), a Notary Public for _____ County of _____ (State), do hereby certify that _____ (officer listed above) personally appeared before me this day and acknowledged the due execution of the foregoing instrument. Witness my hand and official seal, this _____ day of _____, 20 _____. My commission expires _____ of _____, 20 _____.

B. Signed: _____

(OFFICIAL SEAL)

END OF SECTION

SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Name: York County Emergency Operations Center
- B. Project Address: 149 West Black Street Rock Hill, South Carolina 29730
- C. Owner: York County
- D. Engineer: The Contract Documents, dated 03-19-2026, were prepared by REI Engineers, Inc.
- E. This work includes the provision of labor, material, equipment, supervision and administration to integrate the work outlined in these specifications into the total building system such that no leakage into the system occurs. In general, the scope of work in the Base Bid includes:
 - 1. Low Slope Roof Replacement - Roof Areas A1, A2, and A3:
 - a. Remove and dispose of the roof system including flashings and sheet metal down to the steel deck.
 - b. Secure the existing steel deck to structural framing members.
 - c. Remove abandoned equipment curbs and properly repair steel deck.
 - d. Provide Gypsum Substrate loose laid.
 - e. Provide 1.5" Roof Insulation mechanically attached.
 - f. Provide 1.5" Roof Insulation adhered in foam adhesive.
 - g. Provide Tapered Insulation Crickets and Saddles adhered in foam adhesive.
 - h. Provide Cover Board adhered in foam adhesive.
 - i. Provide a two-ply modified bitumen roof membrane along with flashings and accessories.
 - j. Replace sheet metal flashings and trim.
 - k. Provide a complete, watertight, 20-year warrantable roof assembly.
 - 2. Screen Wall Panels Roof Area A1:
 - a. Properly remove and dispose of the asbestos-containing screen wall panels including flashings and trim down to the framing supports.
 - b. Clean, prime and paint existing framing supports.
 - c. Provide metal wall panels and sheet metal accessories..

- d. Provide a 30-year finish warranty.
- F. Provide electrical, plumbing, mechanical, and other related trade work necessary to facilitate project operations. Relocate or raise conduit, HVAC equipment, curbs, and/or plumbing necessary to comply with the requirements of these documents and conform to the requirements of the State Building Code.
 - 1. Conduct construction operations so that heat, air conditioning, ventilation, electrical, telephone, gas, water, sanitary, storm sewer, and any other service required for the building operations are maintained at all times during normal working hours. Any shutdowns or interruptions shall be coordinated with and approved by the owner.
- G. General requirements and specific recommendations of the material manufacturers are included as part of these specifications. The manufacturers' specifications are the minimum standards required for the completed systems. Where specific items listed herein improve the standards required by the manufacturers, they take precedence where their compliance does not affect the manufacturers' guarantee or warranty provisions.
- H. Act as the Project Expeditor and coordinate work and schedules of others hired.

1.2 ASBESTOS CONTAINING ROOFING MATERIALS (ACRM):

- A. Sample Testing Results:
 - 1. The presence of Asbestos Containing Roofing Materials (ACRM) has been detected in test samples of the existing screen wall panels. Remove and dispose of ACRM in a safe and legal manner.
- B. It is the intention of these specifications that no asbestos bearing materials be incorporated into the work. In the event the contractor determines unanticipated asbestos bearing materials present in the building components, stop work in the affected area, notify the Engineer and Owner, and provide temporary protection as required. Costs incurred due to the presence of hidden or unanticipated asbestos bearing materials will be authorized by Change Order to this contract.

1.3 REFERENCE STANDARDS

- A. CSI/CSC MF - Masterformat; 2016.

1.4 CONTRACT

- A. Project constructed under a single prime general construction contract between Owner and Contractor.

1.5 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner may award a separate contract for performance of certain construction operations at Project site.
 - 1. None
- B. Cooperate with separate contractors so work on those contracts are carried out smoothly without interfering with or delaying Work under this Contract.

1.6 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC MF numbering system.
 - 1. Section Identification: The Specifications use section numbers and titles to cross-reference Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete.
- B. 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. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Interpret words and meanings as appropriate. Infer words implied, but not stated, as the sense requires. Interpret singular words as plural and plural words as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Perform requirements expressed in the imperative mood. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. 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.

END OF SECTION

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for work sequence, work restrictions, occupancy requirements and use of premises.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.3 SUBMITTALS

A. Background Checks: Provide background checks for employees anticipated to work on-site during the project.

1.4 WORK SEQUENCE

- A. Construct Work in phases to accommodate the Owner's use; if applicable, of the premises during the construction period; coordinate the construction schedule and operations with the Owner and Engineer.
- B. Construct the Work in phases to provide for public convenience. Do not close off public use of facility until completion of one phase of construction provides alternative usage.
- C. Schedule construction in such a manner that once work has commenced on one facility, the work force to remain at that facility continuously each workday through final completion at that facility.

1.5 WORK RESTRICTIONS

A. Work hours generally performed during normal business hours.

1. Provide notification to the Owner and Engineer 48 hours in advance of work outside of normal business hours. No work allowed without prior notification and authorization.

1.6 OCCUPANCY REQUIREMENTS

A. Owner Occupancy:

1. Owner occupies the premises during construction to conduct his normal operations. Cooperate with Owner in construction operations to minimize conflict and to facilitate Owner usage.
2. Conduct operations as to ensure the least inconvenience and the greatest amount of safety and security for the Owner, building occupants, and the general public.

3. Control noise from operations so that building occupants are not affected.

1.7 SECURITY

- A. Restrict the access of persons entering upon the Owner's property in connection with the work to the Contractor's Entrance and to the site of the work.
- B. Maintain an accurate record of the names and identification of visitors entering upon the Owner's property in connection with the work of this contract, including times of entering and times of leaving, and submit a copy of the record to the Owner weekly.
- C. Background Checks: No persons/personnel allowed on site without the following background checks: Nationwide, Sex Offender check, Social Security Number check. Provide this information to the Engineer/Owner 5 business days prior to the scheduled access for each person. Owner's decision on acceptability of personnel. Each person is required to wear a badge with name, photograph, and company name. Ensure background checks for persons are submitted to Owner and those persons denied access are not allowed on-site.

1.8 USE OF SITE

- A. Limit use of premises and confine construction operations to work in areas indicated and approved by Engineer and Owner. Do not disturb portions of site beyond areas in which the Work is indicated.
 1. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 2. Perform Work in a way that does not restrict parking lots or other locations outside the work area from the facility. Maintain safe access for vehicles
 3. Move stored materials and equipment that interfere with operations of the Owner.
 4. Protect surface improvements including pavements, curbs, sidewalks, lawn and landscaped areas, utilities, etc.
 5. Repair to the Owner and Engineer's satisfaction, or to restore to condition at the time of award of Contract, or to make restitution acceptable to the Owner, damages to surface improvements resulting from, or attributable to, the work operation.
 - a. Repair damaged concrete by replacing full sections of concrete between control/expansion joints.
 - b. Fill ruts in grass areas and grade to original conditions. Provide grass seed and straw.
 - c. Replace disturbed landscaping in mulched or natural areas.
- B. Transportation Facilities
 1. Truck and equipment access:

- a. Avoid traffic conflict with vehicles of the Owner's employees and customers and avoid over-loading of street and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the designated areas.
 - b. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site.
2. Contractor's vehicles:
- a. Require contractor's vehicles, vehicles belonging to employees of the contractor, and other vehicles entering the Owner's property in performance of the work the contract, to use only the designated access route.
 - b. Do not permit such vehicles to park on street or other area of the Owner's property except in the designated area.

1.9 USE OF BUILDING

- A. Maintain building in a weathertight condition throughout construction period.
- B. Take precaution against injuries to persons or damage to property.
- C. Protect building, its contents, and its occupants during construction period.
- D. Do not overload or permit the structure to be loaded with such weights that endanger its safety or to cause excessive deflection.
 - 1. Equally distribute materials placed on the roof.
- E. Properly secure materials or equipment placed on roof to prevent blow off during wind events. Ensure materials or equipment on roof does not interfere with roof drainage.
- F. Repair to the Owner and Engineer's satisfaction, or to restore to condition at the time of award of Contract, or to make restitution acceptable to the Owner, damages to the building and its contents resulting from, or attributable to, the work operation.
- G. Indoor Air Quality:
 - 1. Coordinate with the facility personnel to identify the area where work is performed daily and what HVAC equipment and personnel in the building may be affected by the work.
 - 2. Work with facility personnel to prevent odors or fumes from entering the building or where found to not be practical due to the work area, HVAC equipment limitations or other reasons; coordinate with facility personnel to have occupants relocated to an area of the building not affected by the work.
 - 3. When possible to safely shut down and seal HVAC equipment; as determined by the facility personnel, coordinate with facility personnel to have mechanical units affected by the planned work area and air intakes properly closed and sealed. After closing of mechanical units and air intakes, cover units and intakes with 6-mil polyethylene sheeting taped secure. Remove polyethylene sheeting before coordinating restart of units and intakes.
 - 4. Provide box carriage fans during work to move and circulate air away from intakes and units.

5. Where HVAC equipment is required to remain operational during work, coordinate with facility personnel to cover air intakes with charcoal filters prior to beginning work.
6. When starting work using materials which have odors or emit fumes, communicate with facility personnel within the building in the area of the work to determine if fumes or odors are being experienced. If fumes or odors are experienced, stop work until the cause is determined and remediated or occupants can be moved to an area not affected by the work.

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements governing allowances.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
 - 1. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 2. Section 06 10 00 - Rough Carpentry

1.3 ABBREVIATIONS

- A. Abbreviations for typical units of measurement:
 - 1. Square Foot (SF)
 - 2. Square Yard (SY)
 - 3. Cubic Foot (CF)
 - 4. Board Foot (BF)
 - 5. Linear Foot (LF)
 - 6. Each (EA)
 - 7. Tonnage (TON)

1.4 UNFORSEEN CONDITION ALLOWANCE

- A. Include the specified unforeseen condition allowance in the base bid.
- B. Credit unused portion remaining at the completion of the contract back to the Owner.
- C. The Owner reserves the right to modify the unforeseen condition allowance prior to award of Contract.

1.5 QUANTITY ALLOWANCES

- A. Include the specified quantity allowances in the base bid. Use the unit price submitted on the Bid Form to compute the quantity allowances. The quantities indicated on the Bid Form are estimated quantities only for the purpose of comparing bids. Compensation for the unit price bid made for the exact quantity of work performed under the unit price item. Deductive amounts of unit price work included in the Contract Sum are calculated at 100% of the quoted add unit price.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 SCHEDULE OF ALLOWANCES

- A. Unforeseen Condition Allowance: Include a \$15,000.00 contingency allowance in the base bid.
- B. Quantity Allowances:
1. Repair 500 SF of Corroded Steel Deck (Corrosion Degree 1) with Coating. Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 2. Repair 60 SF of Steel Deck (Corrosion Degree 2) with Steel Plates. Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 3. Overlay 250 SF of Deteriorated Steel Deck (Corrosion Degree 3) with Steel Deck. Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 4. Replace 125 SF of Deteriorated Steel Deck (Corrosion Degree 4). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 5. Replace 120 BF of Deteriorated Wood Blocking. Refer to Section 06 10 00 - Rough Carpentry.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for unit prices.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 05 01 30 - Steel Roof Deck Repair and Securement
2. Section 06 10 00 - Rough Carpentry

1.3 DEFINITION

A. Unit price is an amount proposed by Bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 ABBREVIATIONS

A. Abbreviations for typical units of measurement:

1. Square Foot (SF)
2. Square Yard (SY)
3. Cubic Foot (CF)
4. Board Foot (BF)
5. Linear Foot (LF)
6. Each (EA)
7. Tonnage (TON)

1.5 UNIT PRICE MEASUREMENT

- A. Prior to performing work under a unit price as specified herein, notify the Engineer to allow for measurement of the actual quantities of work. Work performed under these items without prior approval and measurement is at the Contractor's expense.
- B. Maintain a daily log including visual documentation (i.e. digital photographs) showing dates, location and exact quantities of unit price work.

- C. Owner and Engineer reserve 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 party.

1.6 UNIT PRICE PAYMENT

- A. Include in unit prices costs associated with performing the unit price work including but not limited to labor, material, equipment, insurance, applicable taxes, overhead and profit, bonds, etc.

1.7 UNIT PRICE PERFORMANCE

- A. Install unit price work in accordance with the applicable specification sections and Contract Drawings.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Provide a unit price for:
1. Repair Corroded Steel Deck (Corrosion Degree 1) with Coating. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 2. Repair Steel Deck (Corrosion Degree 2) with Steel Plates. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 3. Overlay Deteriorated Steel Deck (Corrosion Degree 3) with Steel Deck. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 4. Replace Deteriorated Steel Deck (Corrosion Degree 4). Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 - Steel Roof Deck Repair and Securement.
 5. Replace Deteriorated Wood Blocking. Unit of Measurement: Board Foot (BF). Refer to Section 06 10 00 - Rough Carpentry.

END OF SECTION

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section specifies administrative and procedural requirements for handling requests for substitutions after award of Contract.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 DEFINITIONS

- A. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for "substitutions". The following are not considered substitutions:
 - 1. Revisions to Contract Documents requested by the Owner or Engineer.
 - 2. Specified options of products and construction methods included in Contract Documents.
 - 3. Determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Submit requests for acceptance of equivalent items in writing to the Engineer during the submittal process. No substitutions considered after acceptance of project submittals.
- B. Substitutions after award are considered solely for convenience and approved by Change Order in form of credit to the Owner. Bear additional costs related to making the substituted material or system work including additional engineering, material or system modifications, and time considerations relating to material or system installation requirements.
- C. Provide information sufficient for the Engineer to make a determination of equivalent items. Engineer's determination of the equivalency of a product is final. The Engineer reserves the right to request information or documentation for evaluation including but not limited to the following:
 - 1. Provide a letter describing in detail proposed changes, substitutions, or deviations from the project or manufacturer's specifications.
 - 2. A written explanation of why substitutions should be considered is required.
 - 3. Statement indicating why specified product cannot be provided.

4. Coordination of information, including a list of modifications needed to other parts of the work necessary to accommodate proposed substitution.
5. Product data including drawings, descriptions, and fabrication/installation procedures.
6. Samples where applicable.
7. Material test reports from a qualified testing agency indicating the interpreting test results for compliance with requirements.
8. Contractor's certification that proposed substitution complies with requirements in the contract documents and is appropriate for applications indicated.
9. 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.
10. If requesting product substitution after bid award, provide cost information including proposal of change in the contract sum.

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for handling and processing Contract modifications.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 REFERENCE STANDARDS

- A. AIA G701 - Change Order; 2017.
- B. AIA G710 - Architect's Supplemental Instructions; 2017.
- C. AIA G714 - Construction Change Directive; 2017.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: A detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time will be issued by the Engineer along with supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 5 days 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. 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 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.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, propose changes by submitting a request for a change to Engineer.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated 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.
 6. Comply with requirements in Division 1 if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Approval:
1. If sufficient contingency allowance funds remain, written approval will be provided by the Engineer in the form of an Allowance Authorization signed by the Engineer, Contractor and Owner.
 2. If contingency allowance funds are not available; upon approval by Owner, written approval will be provided by the Engineer in the form of a Change Order as provided in the Conditions of the Contract.
 - a. Form of Change Order: AIA G701.
 - b. Do not commence work or purchase materials for such change orders until written approval is received in the form of an executed Allowance Authorization or Change Order.
 - c. An executed Change Order is the only legal document which can change the Contract Sum or Time.

1.5 SUPPLEMENTAL INSTRUCTIONS

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Engineer on AIA G710.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Proposal Request; the Engineer may issue a Construction Change Directive on AIA G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive will contain a description of the change in the Work and designate the method followed to determine the change in the Contract Sum or Contract Time.
 2. Submit unit costs, equipment rates and labor rates as requested by the Engineer and agree upon submitted rates before the work progresses unless directed to proceed in the absences of an agreement or in an emergency.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive. Provide a copy of those records the Engineer.
1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

END OF SECTION

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 REFERENCE STANDARDS

- A. AIA G702 - Application and Certificate for Payment; 1992.
- B. AIA G703 - Continuation Sheet; 1992.
- C. AIA G706 - Contractor's Affidavit of Payment of Debts and Claims; 1994.
- D. AIA G706A - Contractor's Affidavit of Release of Liens; 1994.
- E. AIA G707 - Consent of Surety to Final Payment; 1994.

1.5 SUBMITTALS

- A. Sample Application for Payment Cover on AIA G702.
- B. Schedule of Values: A schedule of values on AIA G703. Continuation Sheet consisting of a detailed breakdown of the Contract amount showing separate figures for labor and materials. The work listed under the various sections and subsections of the Specifications serve as the format for preparation.

1.6 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Submittals.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment Forms with Continuation Sheets

- b. Submittals Schedule
 - c. Contractor's Construction Schedule
 - 2. Submit the Schedule of Values to Engineer along with Submittals.
 - 3. Sub schedules: Where the Work is separated into phases requiring separately phased payments, provide sub schedules showing values correlated with each phase of payment.
- B. Format and Content: Provide one line item for labor and one line item for material for each Specification Section.
- 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Application for Payment Number.
 - b. Application for Payment Date.
 - c. Engineer's project number.
 - d. Period to for Schedule of Values.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents.
 - 3. Provide several line items for principal subcontract amounts, where appropriate.
 - 4. Round amounts to nearest whole dollar; total to equal the Contract Sum.
 - 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 6. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
 - 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - 9. Complete each item in the Schedule of Values and Applications for Payment. Include total cost and proportionate share of general overhead and profit for each item.
 - 10. Show temporary facilities and other major cost items that are not direct cost of work in place either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

11. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.7 APPLICATION FOR PAYMENT

- A. Submit one electronic pdf of the application for payment on AIA G702.
 1. Indicate the date for each progress payment. The period of Work covered by each application is the period indicated in the Agreement
 2. Provide on original forms.
 3. Complete, notarize and execute each Application for Payment by a person authorized to legally sign documents.
 4. Show breakdown of the work with separate labor and material amounts on AIA G703 in accordance with the accepted Schedule of Values.
 5. Make each application consistent with previous applications and payments as certified by Engineer and paid for by Owner.
 6. Engineer will return incomplete applications without action.
- B. Payment Terms: Within 21 days of receipt of engineer-approved request, Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this Contract.
- C. Retainage: If contract amount exceeds \$100,000, to ensure proper performance of this Contract, 5% of the amount of each estimate will be retained by the Owner until final completion.
 1. When a portion, or division, of Work as listed in the Schedule of Values is 100% complete, that portion of the retained funds which is allocable to the completed division will be released to the Contractor. No later than 10 days after receipt of retained funds from the Owner, the Contractor shall pay to the subcontractor responsible for such completed work the amount of retainage allocable to the subcontractor's work.
 2. Upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment.
- D. Match data of entries on the schedule of values and construction schedule. Include amounts of change orders issued before last day of construction period covered by the application.
- E. The Engineer reserves the right to contact material manufacturers directly, without contractor consent, to verify material invoices. Make material invoices available to the Engineer upon his request from the contractor or material manufacturer.
- F. When requesting payment for materials stored on site, submit with request an invoice for the materials and a certificate of insurance showing proof of coverage for the materials stored on site. Payment will be made only for stored materials. No payment will be made for anticipated overhead and/or profit.
- G. With each application for payment, also submit the following:

1. Unit Price Daily Logs: Submit copies of unit price daily logs and appropriate change order forms with each application for payment unless no unit price work was accomplished during the period covered by the application.
 2. AIA G706
 3. AIA G706A
- H. At substantial completion, submit an application for payment showing 100% completion for portion of the work claimed as substantially complete. Include documentation supporting claim that the work is substantially complete.
- I. At final completion, submit final application for payment with releases and supporting documentation not previously submitted and accepted, including but not limited to the following. Final payment not due until required documents have been submitted.
1. Project Closeout Submittals
 2. AIA G706
 3. AIA G706A
 4. AIA G707

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - a. Project Schedule
 - b. General project coordination procedures.
 - c. Coordination.
 - d. Administrative and supervisory personnel
 - e. Project meetings

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 SUBMITTALS

- A. Emergency contact list: Key personnel including home, office and mobile numbers, for the Owner, Contractor, Subcontractor(s), and Engineer
- B. Work schedule:
1. Indicate start date, crew size, production rate, completion date, etc.
 2. Provide illustrated schedule on an aerial map.

1.4 COORDINATION

- A. Coordinate construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Coordinate its operations with those included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.

- B. Coordinate the scheduling and sequence of operations with the Owner and Engineer.
- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Pre-Construction conference.
 - 6. Progress meetings.
 - 7. Project closeout activities.

1.5 PROJECT MEETINGS

- A. Pre-Construction Meeting
 - 1. A Pre-Construction Meeting will be scheduled as soon as possible after the award of the contract. The Engineer's Representative will compile minutes of the meeting and will furnish a copy of the minutes to each person present.
 - 2. Attendance: Project Manager, Job Superintendent and Job Foreman, Owner, Engineer's Representative, manufacturer's representatives, installers of related work and other persons concerned with the installation and performance.
 - a. Provide 3 telephone numbers to contact the Contractor or his authorized representative in the event of an emergency after normal business hours.
 - 3. Minimum Agenda: Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and the Project Manager; channels and procedures for communication; construction schedule, including sequence of critical work; contract documents; rules and regulations governing performance of the work and procedures for safety, first aid, security, quality control, housekeeping and related matters.
- B. Progress Meetings:
 - 1. Attend monthly progress meetings for the purpose of informing the Owner and the Engineer regarding the status of the project. The Engineer will compile minutes of the meeting and will furnish a copy of the minutes to each person present.

2. Attendance: Owner, Engineer, Contractor, Job Superintendent, material Supplier, and Subcontractors, as appropriate. Provide an updated job progress schedule at each weekly meeting. Be thoroughly familiar with the status of the project and be prepared to discuss and act upon situations that arise. The time, date and location of these meetings will be established during pre-construction conference.
3. Minimum Agenda: Review of work progress; field observations, problems, and decisions; identification of problems which impede planned progress; maintenance of progress schedule; corrective measures to regain projected schedules; planned progress during succeeding work period; coordination of projected progress; maintenance of quality and work standards; processing of field decisions and Change Orders; effect of proposed changes on progress, schedule, and coordination; other business relating to work.

C. Substantial Completion Inspection Meeting

1. Scheduled by Owner and Engineer upon written notification of substantial completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor, material manufacturer.
3. Minimum Agenda: Walkover inspection, verification of substantial completion, identification of punch list items and identification of problems potentially impeding issuance of warranties.

D. Final Inspection Meeting

1. Scheduled by Owner and Engineer upon written notification of final completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor.
3. Minimum Agenda: Verification of final completion including the completion of the punch list items.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 SUBMITTAL PROCEDURE

- A. General: The Contractor is responsible for providing the submittals to the Engineer. Each submittal is required to be accepted in writing prior to commencement of work.
- B. Submission Requirements:
 - 1. Submit required submittals electronically in pdf format to the Engineer for review. The submittals will then be returned electronically to the Contractor with comments. Final submittals require written responses to submittal comments.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as specified below, commencing on Engineers receipt of submittal.
 - 1. Initial Review: Allow 7 work days for initial review of submittals.
 - 2. Allow 7 work days for processing each resubmittal.
 - 3. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification:
 - 1. Submit as one pdf file with bookmarks for each scheduled item.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals and provide letter describing in detail proposed changes, substitutions, or deviations from the project or manufacturers specifications. Include a written explanation of why substitutions should be considered under the appropriate tab.
- F. Transmittal: Package submittals appropriately for transmittal. Engineer will discard submittals received from sources other than Contractor. Include Contractors certification stating that information submitted complies with requirements of the Contract Documents.
- G. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

1.4 SCHEDULE OF SUBMITTALS

- A. Refer to the applicable specification section for list of submittal requirements for each section.
- B. Submit the following submittal items electronically with a title page and/or pdf bookmark for each submittal item to meet the requirements specified herein:
 - 1. Section 00 61 13.13 - Copy of Executed Performance Bond Form
 - 2. Section 00 61 13.16 - Copy of Executed Payment Bond Form
 - 3. Section 00 62 33 - Roof Manufacturers Acknowledgment Form
 - 4. Section 01 14 00 - Work Restrictions
 - 5. Section 01 25 00 - Substitution Procedures
 - 6. Section 01 29 00 - Payment Procedures
 - 7. Section 01 31 00 - Project Management and Coordination
 - 8. Section 01 35 00 - Hot Work Operations
 - 9. Section 01 40 00 - Quality Requirements
 - 10. Section 01 73 00 - Execution Requirements
 - 11. Section 01 74 00 - Cleaning and Waste Management
 - 12. Section 01 77 00- Closeout Procedures
 - 13. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 14. Section 06 10 00 - Rough Carpentry
 - 15. Section 07 22 16 - Roof Insulation
 - 16. Section 07 42 13 - Metal Wall Panels
 - 17. Section 07 42 93 - Metal Soffit Panels
 - 18. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing
 - 19. Section 07 62 00 - Sheet Metal Flashing and Trim
 - 20. Section 09 91 13 - Exterior Paint
 - 21. Section 22 14 26 - Roof Drains
 - 22. Section 23 05 29 - Rooftop Hangers and Supports
 - 23. Shop Drawings: Shop drawings or letter stating installation of materials as detailed in the Contract Drawings unless properly authorized by the Engineer.
 - 24. Physical color samples as specified in the applicable specification section.

PART 2 PRODUCTS

2.1 SUBMITTALS

- A. General: Prepare and submit Submittals required herein and by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information is specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturers written recommendations.
 - b. Manufacturers product specifications.
 - c. Manufacturers installation instructions.
 - d. Manufacturers catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with recognized trade association standards.
 - i. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Include the following information, as applicable: dimensions, identification of products, fabrication and installation drawings, schedules, coordination requirements and notation of dimensions established by field measurements.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Prepare physical units of materials or products, including the following:
 - 1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

2. Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.
 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineers sample where so indicated. Attach label on unexposed side.
 4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and component as delivered and installed.
 5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity and used to determine final acceptance of construction associated with each set.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.
- F. Product Certificates: Prepare written statements on manufacturers letterhead certifying that product complies with requirements.
- G. Installer Certificates: Prepare written statements on manufacturers letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- H. Manufacturer Certificates: Prepare written statements on manufacturers letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- I. Material Certificates: Prepare written statements on manufacturers letterhead certifying that material complies with requirements.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software used for calculations. Include page numbers.
- M. Manufacturer's Instructions: Prepare written or published information that documents manufacturers recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- N. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, and term of the coverage.

PART 3 EXECUTION

3.1 CONTRACTORS REVIEW

- A. Review each submittal, check for compliance with the Contract Documents and note corrections and field dimensions prior to submitting to Engineer.

3.2 ENGINEERS ACTION

- A. Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal item with an action stamp and will mark stamp appropriately to indicate action taken.
- B. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SECTION 01 35 00
HOT WORK OPERATIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Hot work includes, but is not limited to open flames and spark producing operations, welding, cutting, grinding, torches, etc.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
 - 1. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing

1.3 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2026.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 SUBMITTALS

- A. Training Certificate: Certified Roofing Torch Applicator (CERTA) credentials from NRCA.

1.5 QUALITY ASSURANCE

- A. Torch Training: Torch operators trained in accordance with the current published requirements of the Certified Roofing Torch Applicator (CERTA) Program. The CERTA Training Program can be obtained from NRCA/MRCA, 10255 W. Higgins Rd. Suite 600, Rosemont, IL 60018-5607.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. Torches without pilot flames. The torch flames go out when the trigger is disengaged. Torches of the "dead-man" type "trigger on/trigger off operation."
- B. Properly store, handle and maintain equipment, valves, regulators, tanks, hoses and associated equipment as required by the respective equipment manufacturer and other applicable requirements.
- C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure and the requirements of the local Governing agency.
- D. Infrared Camera or Infrared Thermometer.

PART 3 EXECUTION

3.1 HOT WORK PERMIT

- A. Be responsible for hot work, hot work monitoring and for coordinating hot work with Owner.
- B. Do not initiate hot work until written approval from Owner has been provided.
- C. Be responsible for complying with the Hot Work Permit program, and ensure required precautions are met.
- D. Be responsible for the hot work operations of subcontractors and monitor hot work operations conducted by subcontractors.
- E. When Hot Work Permits are not provided by Owner, utilize own "in-house" hot work permit program to record and monitor hot work operations, including providing monitoring the area after hot work is completed.

3.2 WORK AREA

- A. Inspect conditions listed on the Hot Work Permit.
- B. Inspect the work area prior to beginning work. Notify the Owner of unsatisfactory conditions, and ensure conditions are satisfactory to proceed with work.
- C. Where torch application is specified, and fire safe conditions cannot be assured, notify the Owner, the Engineer and Manufacturer to develop alternate methods of material application to ensure fire prevention. Do not proceed when unsafe conditions are found.
- D. Seal building openings to prevent flames or burning debris from entering concealed spaces and building interior. Seal and protect openings, roof deck joints, curbs, ducts, etc. Protect wood materials as required to eliminate direct flame exposure from torch. Alternate methods of application are encouraged where fire prevention measures cannot be assured.
- E. Disconnect air handling equipment in the hot work area as required to prevent smoke and flames from being pulled into the building and equipment. Coordinate 48 hours in advance with the Owner before disconnecting equipment.
- F. Remove other combustibles from the hot work area. Remove solvents, roofing adhesives, roofing cement, and other flammable liquids from the hot work area.
- G. Take necessary measures to prevent fire exposure at roof tie-ins to existing construction, at wood curbs, expansion joints and at rooftop equipment. Provide necessary materials and methods to prevent fire at these locations.

3.3 FIRE WATCH

- A. Provide fire watch personnel to closely monitor and inspect the work area and adjacent areas for fires, smoldering materials, hot surfaces and smoke.
- B. Inspect and monitor the area between the roof deck and ceiling during and after hot work.

- C. Hot Work Monitor:
 - 1. Monitor conditions for the period of time specified by the Hot Work Permit, and as conditions dictate. Monitor the work area and adjacent areas no less than one hour after hot work has ceased. Record the time period.
- D. Scan the area of work with an Infrared Camera or Infrared Thermometer once work is complete prior to departing the work area.
- E. Provide designated fire watch personnel to monitor interior conditions and exterior conditions during, and after, hot work operations.
- F. Properly train and instruct fire watch personnel of their responsibilities and duties.
- G. Meet the Owner's requirements for Fire Watch as dictated by the Hot Work Permit Program.
- H. Monitor the work area and building interior, and coordinate monitoring process with the Engineer and Owner 48 hours in advance of hot work. Ensure proper hot work procedures are maintained in curbs, ducts, concealed spaces and building interior.

3.4 FIRE PREVENTION AND FIRE SAFETY

- A. Responsible for fire prevention and fire safety. Responsible for developing a pre-fire emergency plan, coordinated with the Engineer and Owner to plan for fire emergencies.
- B. Enforce fire safety precautions and ensure safety measures are followed by the Contractor's and Subcontractor's personnel.
- C. Maintain sufficient fire suppression equipment, including fire extinguishers and a charged water hose.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative and procedural requirements for quality assurance and quality control.
 - 2. Secure and pay costs of licenses and permits required by City, County and/or State authorities.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Authority Having Jurisdiction: AHJ

1.4 DELEGATED DESIGN

- 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. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

1.5 SUBMITTALS

- A. Permit: Provide copy of construction permits along with required licenses or certifications required by the AHJ.

1.6 QUALITY ASSURANCE

- A. Perform quality assurance in accordance with governing Codes, referenced standards, established standards, or industry standards.

- B. Solely responsible for supervising and directing the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise necessary to perform the Work in accordance with the Contract. Solely responsible for the means, methods, techniques, sequences and procedures of construction and for coordinating portions of the Work under the Contract, except where otherwise specified in the Contract Documents. Solely responsible to the Owner that the finished Work complies with the Contract Documents.
- C. It is the intent under this contract that workmanship be of the best quality consistent with the materials and construction methods specified. The presence or absence of the Owner's or Engineer's representative in no way relieves the Contractor of his responsibility to furnish materials and construction in compliance with the drawings and specifications. The Owner and Engineer have the authority to judge the quality and require replacement of unacceptable work or personnel.
- D. Cooperate in the execution of work and plan work in such manners as to avoid conflicting schedules or delay of work. If the work depends upon the work of another Contractor, report defects affecting the work to the Engineer. Commencement of work where such condition exists constitute acceptance of the other Contractor's work as being satisfactory to receive the work commenced. Coordinate work of trades under this contract in such a manner to obtain the best possible workmanship for the project. Install components of the work in accordance with the best practices of the particular trade. Notify the Owner sufficiently in advance of operations to allow for assignment of personnel.
- E. Solely responsible for health and safety precautions and programs for workers and others in connection with the Work. No inspection by, knowledge on the part of, or acquiescence by the Engineer, the Owner, the Owner's employees and agents, or other entity whatever relieves the Contractor from its sole responsibility for compliance with the requirements of the Contract or its sole responsibility for health and safety programs and precautions.
- F. Materials or methods described by words which, when applied, have a well-known technical or trade meaning are held to refer to such recognized standard. Standard specifications or manufacturer's literature, when referenced, are of the latest revision or printing unless otherwise stated, and are intended to establish the minimum requirements acceptable.
- G. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or accepted, deliver materials to the site in original packages or containers with seals unbroken and labels intact and do not open until reviewed and accepted by the Engineer. Notify the Engineer prior to such material's delivery.
- H. Provide new materials unless otherwise indicated.
- I. Provide workmanship in accordance with the best modern practice.
- J. Verify dimensions and conditions at the site prior to starting work and notify the Engineer immediately of any errors or inconsistencies.
- K. Maintain one set of the contract documents and accepted submittals at the job site.
- L. Correct deficiencies identified by Engineer and non-conforming work within 24 hours of receipt of notification, either verbally or written, and submit a plan of action for addressing the deficiencies and non-conforming work. Do not proceed with further tear-off or commencement of other work until deficiencies and non-conforming work are properly addressed.
- M. Control of Installation

1. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
2. Comply with manufacturers' instructions, including each step in the sequence
3. Request clarification from Engineer before proceeding in the event manufacturers' instructions conflict with Contract Documents.
4. Comply with specified standards as the minimum quality for the Work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
5. Only allow Work performed by person qualified to produce workmanship of specified quality.
6. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

N. Tolerances:

1. Monitor tolerance control of installed products to produce acceptable work. Do not permit tolerances to accumulate.
2. Comply with manufacturers' tolerances. Request clarification from Engineer in the event manufacturers' tolerances conflict with Contract Documents.
3. Adjust products to appropriate dimensions; position before securing products in place.

O. Installer Qualifications: A firm or individual experienced in installing, erecting, 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.

1. Maintain applicable federal, state and municipal licenses.
2. Be certified in writing for a minimum of 2 years by the material manufacturer to install the primary specified products.
3. Have a minimum of 5 years' experience in installing the same or similar materials specified under the same firm name as that submitting the bid. If requested, submit a copy of firm's Articles of Incorporation to verify years in business. Crew workers on site are experienced and have a working knowledge of the system being installed.
4. Principals of the firm to have a minimum of 10 years' experience in the estimating, supervision, management and administration of a contracting firm engaged in work similar to work as specified.
5. Licensed by state work is occurring in for the type and dollar amount of work contemplated by these Contract Documents.
6. Never filed bankruptcy or filed for protection from creditors.

7. During the construction and completion of work covered by these Specifications, if the conduct of workers of the various crafts is determined unsuitable or a nuisance to the Owner or Engineer, or if the workman is considered incompetent or detrimental to the work, order such party removed from the grounds with the person not returning during the course of work on the project.
 8. Superintendent: During the performance of work by the Contractor or subcontractors, provide an on site and full time superintendent/representative meeting the following requirements:
 - a. For the purpose of these Specifications the designation "superintendent" is hereby defined as the individual present on the job site while work is being performed, and whose primary responsibility is to supervise and direct the performance of the Work.
 - b. Be in attendance at the project site during the progress of the work and duties as superintendent limited to this project only. Supervise and instruct workmen without engaging in the work process. If superintendent is absent temporarily from the project, designate a competent foreman to assume duties. During the superintendent's absence, foreman cannot engage in the work process; supervise and instruct only. Likewise, communications given to the foreman are binding as if given to the Contractor.
 - c. Communicate matters pertaining to the Work with the Owner and Engineer. Do not make decisions regarding changes in the Work without the Owner and Engineer's knowledge.
 - d. Decision making authority and ability.
 - e. Able to demonstrate knowledge of work being installed.
 - f. Fluent in the English language (reading, writing and speaking).
 - g. In possession of mobile telephone.
 - h. Employed by the Contractor at least six months prior to project commencement.
 - i. Owner approval and Engineer acceptance.
 - j. Once approved, do not change the superintendent except with the consent of the Owner unless he proves unsatisfactory to the Owner or Contractor or is no longer employed.
 - k. Minimum of five 5 years continuous experience as a job superintendent.
 9. No later than ten days prior to the pre-construction conference, provide the Owner, in writing, the names of the proposed project manager, superintendent, and foreman for approval. If he so determines, the Owner, without giving cause, may request an additional name, or names, be submitted for approval. The Owner will notify the Contractor of his acceptance at least 48 hours prior to the pre-construction conference.
- P. Specialists: Certain sections of the Specifications require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists satisfy qualification requirements indicated and be engaged for the activities indicated.

- Q. 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.
- R. 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.

1.7 QUALITY CONTROL

- A. The authorized representatives and agents of Owner permitted to inspect work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.
- B. Owner Responsibilities:
 - 1. Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - a. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
 - b. 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.
- C. Contractor Responsibilities:
 - 1. Repair and protection of work and materials.
 - 2. Replace work or materials not conforming with requirements of the Specifications or damaged during the progress of the work before completion and acceptance of the project.
 - 3. Coordinate documents with manufacturer and perform such testing, reporting, and communication incidental to provisions of the warranty procedures.
 - 4. Inclement Weather
 - a. In the event of temporary suspension of work during inclement weather, or whenever the Engineer recommends, protect carefully its work and materials against damage or injury from weather. If work or materials have been damaged by reason of failure to protect the work, replace such materials.
 - b. During inclement weather and temporary suspension of work, inspect the facility no later than 9:00 AM each day for leaks and perform temporary repairs if necessary. Make inspections daily during extended periods of inclement weather. Upon arrival at the facility, inform the Owner of his presence and purpose.

- c. If inspection of the facility does not occur by 9:00 AM on days of inclement weather and there is one or more leaks attributable to the Work, at 9:15 AM the Owner can exercise his right to contact an outside contractor to perform temporary repairs as necessary to prevent damage to the building, its contents and to minimize disruption. Reimburse the outside contractor an equitable amount as determined solely by the outside contractor. If the Contractor arrives at the project site after the outside contractor has been contacted, but before temporary repairs are made, reimburse the amount contractor the fixed amount of \$500.00, each occasion, for mobilization and/or travel expenses.
 - d. In the event inclement weather occurs after normal business hours, Saturday, Sunday or holidays, make arrangements with the Owner to provide access to the building to inspect for leaks. Compensate Owner for providing personnel for the service on an hourly rate basis as determined solely by the Owner.
- D. Manufacturer's Field Services: During construction, perform quality assurance site visits monthly by manufacturer's technical representative to ensure materials are being properly installed and as required to obtain the specified warranty.
 - 1. The first site visit performed within the first three (3) days of operations.
 - 2. Coordinate site visits with Engineer. Submit reports of findings within one week of inspection. Payment applications will be rejected until applicable reports are received.
 - 3. Inspections to be performed by an employee of the selected manufacturer that is assigned full time to their technical services department. Sales personnel are not acceptable for this function and may result in rejection of the work installed that does not fulfill this requirement.
 - 4. Manufacturer's final inspections performed only with REI personnel in attendance. A minimum of seven days' written notice is required. Manufacturer's final inspection conducted without REI personnel in attendance will be repeated at no additional cost to the Owner.
 - 5. Violation of these requirements results in the removal of that manufacturer for a period of not less than one year from the Engineer's accepted materials list.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 REPAIR AND PROTECTION

- A. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- 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

SECTION 01 42 00

REFERENCE STANDARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Requirements relating to referenced standards.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 REFERENCE STANDARDS

- A. Reference standards are specified in Part 1 of the applicable specification section.
- B. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- C. Comply with the reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- D. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered by Contract Documents by mention or inference otherwise in any reference document.

1.4 BUILDING CODE

- A. Comply with the building code and energy conservation code/standard in effect in North Carolina and current on date of Contract Documents.
 - 1. 2018 North Carolina Building Code
 - 2. 2018 North Carolina Energy Conservation Code

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2026.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 USE CHARGES

A. Include in Contract, cost or use charges for temporary facilities which are not chargeable to Owner. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of testing and inspecting agencies and personnel of authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241 .
- B. Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70 .
- C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- D. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures. Instruct personnel in methods and procedures. Post warnings and information.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials or utilize undamaged, previously used materials in serviceable condition if accepted by Engineer. Provide materials suitable for use intended.
- B. Fencing:
 - 1. Safety Fence: Safety orange high density polyethylene fabric with a minimum of 4 feet in height, 15 lbs. per 100 linear feet. Painted steel fence posts with ground anchors and metal tabs stationed often enough to hold the fabric at a minimum height of 3 feet 8 inches tall.
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.
- E. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material with a self-contained or standalone exterior handwashing station.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure and the requirements of the local Governing agency.
- H. Ground Protection Mats: 4 foot by 8 foot, HDPE infused with rubber for traction mats designed to protect landscaping from construction equipment.

PART 3 EXECUTION

3.1 TEMPORARY UTILITIES

- A. Water Service: Water for construction purposes is available from the Owner at no charge. Operate exterior hose bibs only with properly fitted handles. Remove at the end of each workday. Repair damage to hose bibs or hose bib stems. Do not operate hose bibs with pliers.
- B. Electrical Power Service: Provide portable generators for electrical power requirements.
 - 1. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths do not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

3.2 CONSTRUCTION FACILITIES

- A. Temporary construction facilities include the following:
 - 1. Field Office: prefabricated, mobile units or job-built construction with lockable entrances and serviceable finishes including lights and utilities.

2. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Located facilities at sites approved by Owner. Access inside the facility is not available.
 - a. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - b. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
 - c. Wash Facilities: Provide adequate hand washing stations.
 - d. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
3. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations at a location approved by the Owner. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Use of Owner's waste disposal facilities is not acceptable.
 - a. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material.

3.3 TEMPORARY BARRIERS, ENCLOSURES AND CONTROLS

- A. Provide temporary barriers and enclosures for protection from exposure, foul weather, construction operations and other activities. Protect buildings and grounds from damages during construction.
- B. Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- C. Provide security controls to protect work and materials at the project site.
- D. Provide fencing to enclose the materials storage and staging area.
- E. Provide and maintain suitable temporary sidewalks, closed passageways, fences, or other structures required by law so as not to obstruct or interfere with traffic in public streets, alley ways, or private right-of-way. Leave an unobstructed way along public and private places for pedestrians and vehicles.
- F. Provide walks over and around all obstructions in public places. Maintain sufficient light and guards to protect persons from injury.
- G. Provide emergency egress from existing occupied areas at all times as required by AHJ. Maintain egress path in compliance with requirements of the applicable building code.

3.4 PROTECTION FACILITIES INSTALLATION

- A. Provide environmental protection by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Provide storm water controls sufficient to prevent flooding from heavy rain.

- C. Protection of materials stored on site.
 - 1. Material storage will be where shown in Contract Drawings.
 - 2. Protect materials stored on the job site from theft and weather related damage.
 - 3. Store as much material in locked trailers as practicable.
 - 4. Place no more material on the job site than is necessary to maintain the work schedule.
 - 5. Do not deliver materials prior than 7 days earlier then work commencing.

3.5 TREE AND PLANT PROTECTION:

- A. Contractors are hereby reminded and cautioned that care shall be exercised to protect trees and plants which are to remain during the progress of the Project. Suitable barriers shall be provided around all trees and plants that are to remain and which are in the construction area and product handling area. All damage to such trees and plants shall be repaired; broken limbs properly and neatly pruned and painted with pruning paint; all trunk damage neatly dressed and painted with pruning paint. Any trees and plants which are excessively damaged shall be replaced in like, kind, size, and species by The Contractor at no additional cost. All work shall be by a recognized and approved nursery.
 - 1. All grading around trees and plants to remain shall be such that the root system shall not be disturbed. Earth shall not be temporarily piled around trees and plants, nor shall earth be graded to the trees and plants above the natural root depth for that particular species.
 - 2. Established trees and plants, which are in the way of construction and which are in the material handling areas, shall be removed and stored for future replanting. The services of a recognized and approved nursery shall be employed to remove the trees and plants and prepare them for storage. Removed trees and plants shall be properly balled and burlapped in accordance with their size. During the time of storage, they shall be properly watered and cared for in accordance with the instructions from the nursery. After the construction work is completed, the stored trees and plants shall be replanted, and those trees and plants not replanted shall be disposed of as directed by the Owner.

3.6 CRANES, HOISTS AND LIFTING

- A. Where cranes and other lifting equipment are required, develop and maintain a plan to execute the work in a safe manner including the following items at a minimum:
 - 1. Erection, climbing and dismantling process
 - 2. Inspection process for equipment and rigging
 - 3. Exclusion zones
 - 4. Maintenance processes
 - 5. Identification of Qualified/Competent persons
 - 6. Lifting plan
 - 7. Process for identifying and working around aerial hazards

- 8. Signalmen communication
- 9. Working around energized lines
- 10. Ground conditions and underground hazards
- B. Ensure that cranes and lifting equipment are certified for use by a Qualified/Competent person prior to first use and annually (at a minimum).
- C. Ensure that cranes and lifting equipment are inspected as required by a third party Qualified/Competent person.
- D. Provide ground protection mats over landscaped areas beneath lifts.
- E. Do not operate or travel lifts over curbs or sidewalks. Where necessary to travel equipment over curbs or sidewalks, provide adequate protection to prevent damage.

3.7 PROJECT SIGNAGE

- A. Provide temporary signs to provide information to building occupants directing them away from construction operations.
- B. Provide signage inside adjacent buildings alerting occupants of the Work Area.

3.8 VEHICULAR ACCESS AND PARKING

- A. Parking for vehicles available only in the approved Set-up and Staging area. No other vehicle parking on site is allowed.
- B. Owner Personnel vehicles will be removed from the construction area prior to the start of construction.

3.9 TRAFFIC CONTROLS

- A. Obtain and erect street/parking lot signage as necessary to divert traffic away from staging areas, work area, etc. Coordinate signage requirements with the Owner and Engineer.
- B. Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

END OF SECTION

SECTION 01 73 00
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. General procedural requirements governing execution of the Work.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 SUBMITTALS

- A. List of Materials on the project site including manufacturer name and product name.
- B. Safety Data Sheets (SDS):
 - 1. Safety Data Sheets (SDS) for materials/products anticipated for use and stored or brought to the site for completion of this project.
 - 2. Maintain on site with the Superintendent a set of SDS for products/materials on site.
- C. Existing Damage Documentation: Existing damaged/dysfunctional components documentation (videotape, photos, etc.) including but not limited to asphalt spills, windows, walls, sidewalks, paving, ceilings, etc. Lack of submission prior to commencement of work indicates no existing damaged components and Contractor takes responsibility for damages caused by operations.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Material storage area designated by the Owner at the Pre-Bid and Pre-Construction Meetings and/or indicated in Contract Drawings.
 - 1. Store materials as required by the manufacturer and indicated in their installation instructions.
 - 2. Store materials as required by their respective specification section.
 - 3. Properly secure materials to resist wind events.
- B. Deliver and transport materials to project in accordance with the Owner's requirements and coordinate material deliveries with Owner.
- C. Hazardous Materials:
 - 1. Use products, cleaners, and installation materials that are not considered hazardous.

2. Store chemicals in a fireproof cabinet. Store only like materials together in a cabinet. Ensure labels are intact or to place labels on chemicals prior to delivery to site.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Existing Conditions:
 1. The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of construction affecting the Work.
- B. Existing Utilities:
 1. The existence and location of utilities and construction indicated as existing are not guaranteed.
 2. Before construction, verify the location and points of connection of utility services.
 3. Before beginning work, investigate and verify the existence and location of utilities and other construction affecting the Work.
- C. Acceptance of Conditions:
 1. Examine areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
 2. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include a description of the work, list of detrimental conditions, list of unacceptable installation tolerances and recommended corrections.
 3. 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 material. 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: Upon discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

- B. Install products at the time and under conditions that ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- C. 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.

3.4 STARTING AND ADJUSTING

- A. Test equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

3.6 CORRECTION OF THE WORK

- A. Restore permanent facilities used during construction to their specified condition.
- B. Replace components that are not up to specification standards.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. This Section includes procedural requirements for cutting and patching.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Engineer's Acceptance: Obtain acceptance of cutting and patching before cutting and patching. Acceptance does not waive right to later require replacement of unsatisfactory work.
- B. Structural Elements: Do not cut and patch structural elements in a manner that changes their load-carrying capacity or load-deflection ratio. Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations sealed by a licensed Engineer in the state of the project showing integration of reinforcement with original structure.
- C. 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 result in increased maintenance or decreased operational life or safety.
- D. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that change their load-carrying capacity that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.
- E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that, in the Engineer's opinion, reduces the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- F. Cutting and Patching Conference: If extensive cutting and patching is required, before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and conditions under which cutting and patching are performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.3 PERFORMANCE

- A. 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 existing 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. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete or Masonry: Cut using 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.
- C. 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 possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend from one finished area into another, patch and repair floor and wall surfaces. Provide an even surface of uniform finish, color, texture, and appearance. Replace floor and wall coverings, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over unbroken surface containing the patch to the nearest joint or delineation between materials. Provide additional coats until patch blends with adjacent surfaces.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.
 5. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
- D. Renovation Project Procedures
1. Materials: As specified in technical sections, match existing products and Work.
 2. Employ skilled and experienced installer to perform cutting and patching.
 3. Remove, cut and patch materials in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.

4. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes.
 5. Where work abuts or aligns with existing construction, provide a smooth and even transition. Patch work to match existing adjacent work in texture and appearance.
 6. When a smooth transition with Work is not possible, submit recommendation to Engineer for review. Terminate existing surface along a straight line at a natural line of division when possible.
 7. Patch or replace portions of surfaces, which are damaged, lifted, discolored or showing other imperfections.
 8. Finish surfaces as specified in individual Product sessions.
 9. Cutting and patching completed in a manner such that the patched surfaces are compatible with the surfaces in which the repairs were made, both structurally and aesthetically as deemed appropriate by the Project Engineer.
- E. Restoration: Restore existing work, including concealed work not indicated or specified to be modified, and which is damaged or otherwise affected by construction operations, to a condition which existed before the work was commenced. Use workers skilled in reconstruction and alteration work where construction adjoins, connects to, or abuts existing work. Join Work in such a manner as to make the joining as inconspicuous as possible. Obvious patching of damaged Work is not acceptable. At the completion, ensure that the buildings and grounds are in first-class condition within the intent of these specifications, with parts well joined as required, connections completed, and facilities in working condition.

3.4 CLEANING

- A. Clean areas and spaces where cutting and patching is performed where required for construction or used as access.
- B. Remove paint, mortar, oils, putty and similar materials.
- C. Leave work in an acceptable completed condition.

END OF SECTION

SECTION 01 74 00

CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and Procedural requirements for progress cleaning and construction waste management.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 REFERENCE STANDARDS

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.4 DEFINITIONS

- A. Waste: Material that has reached the end of its intended use. Waste includes salvageable, returnable, recyclable and reusable material.
- B. Construction waste: Solid wastes including, but not limited to, building materials, packaging materials, debris and trash resulting from construction operations.
- C. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
- D. Hazardous waste: Material or byproduct of construction that is regulated by the Environmental Protection Agency and cannot be disposed in a landfill or other waste end-source without adherence to applicable laws.
- E. Trash: Product or material unable to be returned, reused, recycled or salvaged.
- F. Landfill: Public or private business involved in the practice of trash disposal.

1.5 CLOSEOUT SUBMITTALS

- A. Landfill charge tickets

PART 2 PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or cause damage to finished surfaces.

PART 3 EXECUTION

3.1 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials in a legal manner.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 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.
- B. Site:
 - 1. Maintain Project site free of waste materials and debris.
 - 2. Keep site free of nails, screws, fasteners and scrap metal. Utilize magnets as necessary to sweep parking lots, driveways and sidewalks. Responsible for repair or replacement of punctured tires of site occupants.
- 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 impairs proper execution of the Work, broom-clean or vacuum the work area, as appropriate.
 - 3. If necessary, have a heavy-duty vacuum on site to remove small, loose debris from work area.
- 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 do not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site is not permitted. Washing waste materials down sewers or into waterways is not permitted.

- I. 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 Final Acceptance.
- J. 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.
- K. 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.

3.2 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that prevents spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.
- D. Separate, store and dispose of hazardous wastes in accordance with local and EPA regulations and additional criteria listed below:
 - 1. Do not incinerate building products manufactured with PVC or containing chlorinated compounds.
 - 2. Disposal of fluorescent tubes to open containers is not permitted.
 - 3. Do not co-mingle unused fertilizers with construction waste.

3.3 FINAL CLEANING

- A. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - 2. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including, waste material, litter, and other foreign substances.
 - 3. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

4. Remove tools, construction equipment, machinery, and surplus material from Project site. Properly dispose of unwanted surplus material.
 5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 6. Remove debris and surface dust from roofs and walls.
 7. Clean transparent materials and glass in windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 8. Remove labels that are not permanent.
 9. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 10. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess foreign substances.
 11. Replace parts subject to unusual operating conditions.
 12. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - a. Inspection Procedures.
 - b. Project Record Documents.
 - c. Warranties.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section.

1.3 REFERENCE STANDARDS

- A. AIA G704 - Certificate of Substantial Completion; 2017.

1.4 SUBMITTALS

- A. Warranties: Submit copy of warranties to meet the requirements of their respective specification section.

1.5 SUBSTANTIAL COMPLETION

- A. Submit written certification to the Engineer that the Project is substantially complete along with the following:
 - 1. Prepare a list of items to be completed and corrected (Contractor's punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Notify Owner of pending insurance changeover requirements.
 - 3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 5. Notify Owner of changeover in heat and other utilities.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

7. Complete final cleaning requirements, including touchup painting.
 8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Substantial Completion Inspection: On receipt of written substantial completion certification, the Engineer will make a substantial completion inspection within 7 days after receipt of certification.
1. Should the Engineer consider the Work not substantially complete, he will notify the Contractor, in writing, stating the reasons. Complete the Work and send a second written notice to the Engineer, certifying the Project is substantially complete, at which time the Engineer will re-inspect the work.
 2. Should the Engineer consider the Work substantially complete, he will prepare and issue AIA G704 accompanied by the list of items to be completed or corrected (Punch List).
 3. A punch list of items will be prepared for correction and completion before the Final Inspection. Complete the punch list items within 15 days of the punch list inspection. If the Contractor fails to complete the punch list within this period, the Owner has the right to impose liquidated damages in the amount of \$500.00 for each consecutive day until the items are completed.

1.6 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 01.
 2. Submit signed copy of Engineer's inspection list of items to be completed or corrected (punch list) certifying each item has been completed or otherwise resolved for acceptance.
 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Final Inspection: The submission of the signed punch list constitutes as written request for final inspection for acceptance. On receipt of request, Engineer along with the Owner's Representative will conduct a final inspection within 7 days of receipt of certification.
1. Should the Engineer consider that the Work is finally complete in accordance with requirements of the Contract Documents, Project Closeout Submittals will be requested.
 2. Should the Engineer consider that the Work is not finally complete, notification to the Contractor, in writing, stating the reasons will be made.
 3. Take steps to remedy the stated deficiencies and send a second written notice to the Engineer certifying that the Work is complete, at which time the Engineer will re-inspect the Work.

1.7 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
 - 1. Submit required record documents and warranties within 30 days of the punch list inspection. If the Contractor fails to properly submit required items within this period, the Owner has the right to impose liquidated damages in the amount of \$500.00 for each consecutive day until the items are properly submitted.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark Record Prints to show where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 - 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Note related Change Orders and Record Drawings, where applicable.
- D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
 - 1. Completed and signed Engineer's Punch List
 - 2. Copy of Manufacturer's Final Inspection Report

3. Landfill Charge Tickets
4. Certificate of Occupancy from AHJ

1.8 WARRANTIES

- A. Warranties to commence on the date of Substantial Completion of the project.
- B. Metal Wall Panel finish warranty as outlined in Section 07 42 13 - Metal Wall Panels.
- C. Modified Bitumen Roofing System warranty as outlined in Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing.
- D. Pre-finished Sheet Metal finish warranty as outlined in Section 07 62 00 - Sheet Metal Flashing and Trim.
- E. Contractor's Warranty - utilize form contained in Section 00 65 36.
- F. Asbestos Free Warranty - utilize form contained in Section 00 65 37.

END OF SECTION

SECTION 05 01 30

STEEL ROOF DECK REPAIR AND SECUREMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Steel Deck Repair: Inspect, evaluate and remediate steel roof deck as follows:
 - a. Repair of surface rust in steel decking.
 - b. Repair of through holes in steel decking.
 - c. Overlay of damaged or deteriorated steel decking.
 - d. Replacement of damaged or deteriorated steel decking.
 - 2. Steel Deck Securement: Provide mechanical fasteners to secure steel deck to existing steel framing and to secure existing deck side and end laps.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 07 01 50 - Preparation for Reroofing
 - 3. Section 07 22 16 - Roof Insulation
 - 4. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing
 - 5. Section 22 14 26 - Roof Drains

1.3 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual; 2023, with Errata (2025).
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.
- C. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components; 2016, with Editorial Revision (2022).
- D. SDI (DM) - Publication No.30, Design Manual for Composite Decks, Form Decks, and Roof Decks; 2007.
- E. SDI QA/QC - Standard for Quality Control and Quality Assurance for Installation of Steel Deck; 2022.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

1.5 QUALITY ASSURANCE

- A. Provide meticulous attention to the detail of installation and workmanship to ensure the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Steel Deck Repair:
 - 1. Steel Deck: FM Approved or UL listed, 22 gauge minimum; galvanized steel meeting ASTM A653/A653M with profile to conform to existing deck profile at end and side laps.
 - 2. Deck Repair Plates: 16 gauge, galvanized steel plates meeting ASTM A653/A653M sized to extend a min. 8 inches beyond the through hole in existing decking with plate edges resting on a rib.
 - 3. Deck Repair Coating: High solids, low VOC, self-priming epoxy coating for use on steel structures.
 - a. PPG Amerlock 400
 - b. Devoe Bar-Rust 231
 - c. Kryon Industrial High Build Epoxy Mastic 100
 - d. Benjamin Moore & Co. Surface Tolerant Epoxy Mastic Coating V160
- B. Steel Deck Securement:
 - 1. Deck-to-structural steel fasteners: FM Approved, self-drilling deck fasteners of length and type as required by fastener manufacturer for thickness of structural steel.
 - a. ITW Buildex Corp. 12-24 Tek 5
 - b. SFS Intec Impax 12-24 SD5
 - c. Blazer 1/4-20 DP5
 - 2. Deck-to-deck side lap fasteners: FM Approved self-drilling deck side lap fasteners of length and type as required by fastener manufacturer for thickness of steel deck.
 - a. ITW Buildex Corp. 10-16 Tek 3
 - b. SFS Intec #10-16 SD3

- c. Blazer #10-16 DP3
- 3. Washers: 3/4 inch diameter of same material as fastener or integral 1/2 inch diameter washer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect roof deck in work areas noted on roof plan. Notify engineer of additional damaged decking, or damaged structural elements.
- B. Before removing decking, cutting decking or fastening decking, inspect interior conditions under the deck to prevent cutting or damaging the joists, electrical conduit, sprinkler piping, fixtures and utilities. Ensure conditions are satisfactory before proceeding with the work, and continuously monitor interior and exterior work conditions during demolition and construction operations.
- C. Commencement of work signifies acceptance of conditions. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.
- D. The following descriptions indicate roof deck corrosion levels by degree. Inspect roof deck areas and assess corrosion level of 1 through 5. Following the assessment, conduct the appropriate Remediation Method in accordance with the deck corrosion level descriptions.
 - 1. Corrosion Degree 1
 - a. Red rust or dark brown rust scaling on top flange only.
 - b. Dark brown rust scale removed by scraping/wire brushing to indicate minor pitting of the metal surface.
 - c. Deck flutes discolored.
 - 2. Corrosion Degree 2
 - a. Red rust or dark brown rust scale present on the deck surface.
 - b. Deck sections (flanges and flutes) have been or can be readily removed during examination or areas of decking are missing, up to 13" in any one direction.
 - 3. Corrosion Degree 3
 - a. Red rust or dark brown rust scale present on the deck surface.
 - b. Deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, from 13" to 24" in one dimension.
 - 4. Corrosion Degree 4
 - a. Red rust or dark brown rust scale present on the deck surface.
 - b. Deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, 24" or greater in one dimension.

3.2 PREPARATION

- A. Remove and vacuum debris from deck surface and ribs to allow for inspection of deck, and to fasten decking.
- B. Remove and properly dispose of damaged decking (Corrosion Degree Level 4) and remove deck fasteners in the repair area.
- C. Take necessary precautions to prevent debris from entering building space, and coordinate operations with Engineer and Owner.
- D. Provide temporary protection of building interior and contents to prevent damage.

3.3 STEEL DECK REMEDIATION

- A. General:
 - 1. Remove loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
 - 2. Vacuum the roof deck surface clean.
- B. Corrosion Degree 1:
 - 1. Properly mix deck repair coating according to manufacturer's recommendations.
 - 2. Do not mix more material than can be used in the materials expected pot life.
 - 3. Apply material at temperatures from 50° F to 90° F for optimum application.
 - 4. Brush or roller apply deck repair coating as recommended by manufacturer.
 - 5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
- C. Corrosion Degree 2:
 - 1. Properly mix deck repair coating according to manufacturer's recommendations.
 - 2. Do not mix more material than can be used in the materials expected pot life.
 - 3. Apply material at temperatures from 50° F to 90° F for optimum application.
 - 4. Brush or roller apply deck repair coating as recommended by manufacturer.
 - 5. Mechanically attach deck repair plate to deck ribs with deck to side lap fasteners 6 inches on center maximum or a minimum of 2 screws per side.
- D. Corrosion Degree 3:
 - 1. Properly mix deck repair coating according to manufacturer's recommendations.
 - 2. Do not mix more material than can be used in the materials expected pot life.
 - 3. Apply material at temperatures from 50° F to 90° F for optimum application.
 - 4. Brush or roller apply deck repair coating as recommended by manufacturer.

5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
 6. Overlay steel deck to match existing profile extending a minimum of 6 inches beyond the deficient area.
 7. Mechanically attach perimeter of overlay deck to existing deck ribs with deck to side lap fasteners 6 inches on center.
 - a. Where structural support is present, secure overlay deck to structural framing in accordance with the steel deck securement pattern.
 - b. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.
 - c. Follow deck Manufacturer's instructions and SDI QA/QC .
- E. Corrosion Degree 4:
1. Examine underside of steel deck for conduit located directly below the deck surface, anything suspended or fastened to the deck surface, etc. If necessary, detach objects from the bottom side of the deck being removed.
 2. Remove deck meeting Corrosion Degree 4.
 3. Provide roof deck where existing is removed.
 4. Overlap deck end laps no less than 6 inches and as required to secure through both panels and into the structural steel. Lap ends only over structural framing. Deck fasteners to penetrate deck panels no less than 2 inches from the edge of the panel.
 5. Overlap deck side laps to nest flush into neighboring deck panel. Install a minimum of two deck side lap fasteners between framing members.
 6. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.
 7. Follow deck Manufacturer's instructions and SDI QA/QC .

3.4 STEEL DECK SECUREMENT

- A. Fasten steel deck panels to steel framing and steel deck side laps as indicated in the contract drawings and to meet the requirements of SDI (DM), AISC (MAN), and FM DS 1-29.
- B. Drive deck fasteners in the center of the bottom of the deck rib. Drive the fasteners within +/-1/4 inch of the center of the structural steel bearing surface. Drive fasteners along the center of the structural steel member, not near the edge of the structural steel.
- C. Drive deck side lap fasteners into the deck rib such that both panels are penetrated. Locate the side lap fasteners along the center of the bottom of the rib.
- D. Utilize fastener with integral washer or provide washer for fasteners in Zone 2 (perimeter) and Zone 3 (corner).
- E. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.

3.5 FIELD QUALITY CONTROL

- A. Monitor the inside of the building during removal and replacement of damaged steel decking to prevent damage to building, equipment and occupancy.
- B. Monitor hot work operations in strict accordance with the Owners requirements and local Code. These operations include, but are not limited to, cutting, welding, soldering, brazing, grinding, etc. and other spark or flame producing operations.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Rough Carpentry work required to facilitate installation of roof assembly including:
 - a. Provide pressure treated rough carpentry.
 - b. Resecure rough carpentry to remain in place.
 - c. Replace damaged, rotted or deteriorated rough carpentry with pressure treated rough carpentry.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:
 - 1. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 2. Section 07 01 50 - Preparation for Reroofing
 - 3. Section 07 22 16 - Roof Insulation
 - 4. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing
 - 5. Section 07 62 00 - Sheet Metal Flashing and Trim

1.3 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- B. ASTM F1667/F1667M - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2021a.
- C. AWPA U1 - Use Category System: User Specification for Treated Wood; 2025.
- D. FM DS 1-49 - Perimeter Flashing; October 2021.
- E. PS 1 - Structural Plywood; 2023.
- F. PS 20 - American Softwood Lumber Standard; 2025.

1.4 DEFINITIONS

- A. Rough Carpentry includes carpentry work not specified as part of other Sections and generally not exposed.

- B. KDAT: Kiln Dried After Treatment.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.

1.6 QUALITY ASSURANCE

- A. Inspect wood for damage, warping, splits, and moisture content as defined by the applicable wood products industry standards. Reject materials that do not comply.
- B. Rough carpentry to present a smooth, consistent substrate for roof system and flashing installation.
- C. Qualifications of workers: Provide sufficient, competent and skilled carpenters in accordance with accepted practices and supervisors present during execution of the work. Be thoroughly familiar with type of construction involved and related work and techniques specified.
- D. Moisture Content:
 - 1. Kiln Dry After Treatment (KDAT).
 - 2. Do not store or install treated lumber used in the roofing assembly in a manner exposing it to rain.
 - 3. Lumber: 19% or less before being covered/enclosed into roofing assembly.
 - 4. Plywood: 18% or less before being covered/enclosed into roofing assembly.
- E. Label: Bear the stamp of the AWP Quality Mark, indicating compliance with the requirements of the AWP Quality Control Program.
- F. Installation of rough carpentry for roofing and flashing terminations to ensure plumb, uniform and level metal flashings.
- G. Install rough carpentry to ensure roof membrane flashing transitions are smooth for positive roof drainage and appearance.
- H. Installation of fasteners and associated materials to secure rough carpentry as detailed and specified.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Store a minimum of four inches above ground on framework or blocking. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks. Cover with protective waterproof covering providing for adequate air circulation and ventilation
- B. Avoid exposure to precipitation during shipping, storage or installation. If material does become wet, replace or permit to dry prior to covering or enclosure by other roofing, sheet metal or other construction materials (except for protection during construction).
- C. Upon delivery to job site, place materials in area protected from weather.

- D. Do not store seasoned materials in wet or damp portions of building.
- E. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Wood Nailers/Blocking:
 - 1. No. 2 or better spruce or southern yellow pine lumber meeting PS 20 standards.
 - 2. Sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing.
 - 3. Dimensions determined by job conditions or as indicated in detail drawings.
- B. Plywood:
 - 1. APA PS 1 Rated Sheathing, 32/16, Exposure 1, Grade C, thickness to match existing or as indicated in Contract Drawings.
- C. Preservative Treatment:
 - 1. ACQ as manufactured for Viance in accordance with AWPA U1 and P5, P26, P27, P28, P29 as appropriate. Use 0.15 lb/cu ft of ACQ in accordance with AWPA U1, Use Catagory UC3B.
 - 2. Ecolife or EL2 as manufactured by Viance. Use 0.019 lb/cu ft of Ecolife or EL2 (+ 0.2 lb/cu ft MCS) in accordance with AWPA U1, Use Catagory UC3B.
 - 3. Micro-Guard as manufactured by Hoover Treated Wood Products, Inc. in accordance with AWPA U1, Use Catagory UC3B.
 - 4. Engineers accepted equivalent.

2.2 FASTENERS

- A. General:
 - 1. Stainless steel or as accepted by Engineer.
 - 2. Fasteners securing pressure treated lumber manufactured for corrosion resistance and exposures associated with pressure treated wood applications.
 - 3. Do not use nails at roof edges to fasten rough carpentry, lumber, plywood, etc. Use screws, anchors, and/or machine bolts to secure rough carpentry at roof perimeter edges.
 - 4. Do not use masonry screws, spikes, and drive-pins to fasten edge/perimeter nailers to concrete. Utilize minimum 1/2-inch diameter anchors or bolts to secure roof edge nailers to concrete.
 - 5. Do not secure or fasten edge/perimeter wood nailers to hollow core concrete masonry; grout concrete masonry units and provide minimum embedment of fasteners to meet anchor manufacturer's installation instructions.

6. Do not secure edge/perimeter wood nailers to brick masonry as the primary securement method.
- B. Nails: 8d (0.135 inch shank diameter), 10d (0.148 inch shank diameter) or 16d (0.162 inch shank diameter), type 316 stainless steel, ring shank nails. meeting ASTM F1667/F1667M. Length to embed into base substrate a minimum 1-1/2 inches.
1. Maze Nails
 2. Anchor Staple and Nail
 3. Simpson Strong Tie
 4. Manasquan Premium Fasteners
 5. Engineers accepted equivalent.
- C. Screws: No. 10 or greater, stainless steel wood screws with flat head, or insulation screws. Length to embed into base substrate a minimum of 1-1/2 inches.
- D. Self-Drilling Screws:
1. Zinc coated steel meeting ASTM A153/A153M with corrosion resistant coating, FM Approved, self-drilling, self-tapping, winged screw. Length to provide minimum 3 pitches of thread through metal thicknesses. Diameter, threads and drill point determined based upon wood and substrate component meeting manufacturer's published data.
 2. Plywood Attachment:
 - a. ITW Buildex Teks Wood-to-Metal Fastener
 - 1) #10-24 Drill Point #3 for 16 gauge to 0.175 inch thick steel
 - 2) #10-16 Drill Point #3 for 22 gauge to 0.175 inch thick steel
 - b. Blazer Self-Drilling Screw Wood to Metal Applications
 - 1) #10-24 Blazer-3 with Wings for 18 gauge to 3/16 inch thick steel
 - 2) #10-16 Blazer-3 Long Pilot for 26 gauge to 1/8 inch thick steel
 - 3) #12-24 Blazer-5 with Wings for 1/4 inch to 1/2 inch thick steel
 - c. Hilti
 - 1) S-WD 10-24 PWH #3 for 18 gauge to 0.175 inch thick steel
 3. Wood Blocking:
 - a. ITW Buildex Teks Wood-to-Metal Fastener
 - 1) #12-24 Drill Point #4 for 1/8 inch thick to 1/4 inch thick steel
 - b. Blazer Self-Drilling Screw Wood to Metal Applications
 - 1) #12-24 Blazer-2 with Wings for 18 gauge to 0.210 inch thick steel

- 2) 1/4-20 Blazer-5 with Wings for 0.210 inch to 1/2 inch thick steel
- c. Hilti Wood Drill Screws
 - 1) S-WW 12-24 1/2 PFH #4 Wings for 18 gauge to 0.232 inch thick steel
 - 2) S-WW 14-20 #4 PFH Wings for 18 gauge to 0.25 inch thick steel
- E. Epoxy Adhesive Anchor System: Minimum 1/2-inch diameter, corrosion resistant threaded rods supplied by the anchoring system manufacturer, length to provide minimum embedment as required by fastener manufacturer based upon substrate being secured. Screen for substrate provided by fastener manufacturer. Corrosion resistant nut and 1-1/2 inch diameter flat washer.
 - 1. Hilti HIT-HY 100 Adhesive Anchor
 - 2. Powers Fasteners, Inc. AC100 Anchoring System
 - 3. Red Head Epcon C6 Fast Curing Epoxy
 - 4. Engineers accepted equivalent
- F. Washers: Fasteners heads for screws, anchors and bolts terminating at the surface of nailers provided with a minimum 5/8-inch diameter, stainless steel or similar corrosion resistance flat washer provided by fastener manufacturer, unless washer is provided from factory as part of the fastener assembly.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect substrates to receive rough carpentry, and ensure substrates are in satisfactory condition prior to installation of rough carpentry.
- B. Inspect rough carpentry including fasteners for material condition before proceeding with installation. Replace deteriorated, rotted, damaged, split, warped, twisted or wet materials.
- C. Remove cants, tapered edge strips, debris, fasteners, etc. that interfere with the installation of rough carpentry.
- D. Notify Engineer in writing of unsatisfactory conditions.
- E. Commencement of work signifies acceptance of substrates. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

3.2 PREPARATION

- A. Steel/Metal Substrates:
 - 1. Coat steel and metal with a uniform, heavy application of asphalt primer, or separate by membrane or other acceptable means to prevent contact between steel/metal and treated wood products.
- B. Roof Deck and Structure:

1. Adjust substrates to receive rough carpentry to ensure completed rough carpentry installation is acceptable for roofing and sheet metal flashings.
 2. Coat steel decking with a uniform, heavy application of asphalt primer, or separate by membrane or other acceptable means to prevent contact between steel and treated wood products.
 - a. Do not allow treated lumber to make direct contact with steel decking.
- C. Epoxy Adhesive Anchor System:
1. Follow adhesive anchor manufacturer's published instructions for preparation and installation.
 2. Pre-drill hole for adhesive anchors.
 3. Use compressed air to blow-out and remove dust and moisture before installing adhesive anchors.

3.3 INSTALLATION

- A. Replace damaged or deteriorated wood blocking, nailers, and curbs.
- B. Re-secure wood nailers at roof edges that are to remain with fastener type and spacing to comply with this section.
- C. Install wood blocking, nailers, and curbs to achieve a minimum 8-inch flashing height above the roof membrane.
- D. Install wood nailers at perimeter roof edges and low-profile expansion joints to match insulation height while maintaining a constant nailer height along perimeter edges.
- E. Install wood blocking and nailers concurrently with roof system installation. Removal of insulation and/or folding back of roof membrane to install wood blocking and nailers at a later date is not acceptable.
- F. Set rough carpentry to required levels and lines, with members plumb, true to line, material cut to fit, and braced to hold work in proper position. Use a belt sander to remove obtrusive surface irregularities. Drive nails and spikes home; and pull bolt nuts tight with heads and washers in close contact with the wood.
- G. Fit rough carpentry to other construction, scribe and cope for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction. Install joints between wood for a smooth transition.
- H. Attachment:
 1. Consult the fastener manufacturer's published literature and follow the recommended requirements for pre-drilling, cleaning, placement and compatibility of substrates. Follow manufacturer's requirements for fasteners spacing, substrate preparation and substrate embedment where not specified.
 2. Securely attach rough carpentry work to substrate with fasteners anchored to resist the required upward and outward design wind loads.
 3. Meet the requirements herein and that of FM DS 1-49 for rough carpentry attachment.

4. Install bolts flush with the top surface of nailers where possible to avoid countersinking. Bolt bottom nailers then fasten above nailers where possible. Countersink bolts, nuts and screws flush with wood surfaces only as detailed; countersink a maximum of one half the board thickness.
 5. Install fasteners without splitting wood. Pre-drill where necessary. Replace split or damaged wood to provide acceptable conditions.
 6. For anchors, pre-drill concrete and masonry units to prevent damage or cracking of the masonry. Consult fastener manufacturer's published guides. Repair or replace damaged masonry with fasteners re-installed in an acceptable location.
 7. Fastener spacing: Staggered in two rows $\frac{1}{3}$ the board width when board is wider than 6 inches and installed within 3 to 4 inches of each end.
 - a. Nails: Securing wood to wood spaced as indicated below with two nails installed within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints. Do not utilize nails at roof edges, utilize screws.
 - 1) Perimeter (Zone 2) spacing of 12 inches maximum and Corner (Zone 3) spacing of 6 inches maximum.
 - b. Screws: Securing wood to wood spaced as indicated below with two screws installed within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints.
 - 1) Perimeter (Zone 2) spacing of 12 inches maximum and Corner (Zone 3) spacing of 6 inches maximum.
 - c. Self-Drilling Screws: Securing wood to steel spaced as indicated below with one screw within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints.
 - 1) Perimeter (Zone 2) spacing of 12 inches maximum and Corner (Zone 3) spacing of 6 inches maximum.
 - d. Epoxy Adhesive Anchors System: Spaced as indicated below, staggered and an additional fastener within 3 to 4 inches of each end of nailer to prevent boards from twisting at board joints.
 - 1) Perimeter (Zone 2) spacing 48 inches max and Corner (Zone 3) spacing 24 inches max.
 8. Plywood Sheathing Securement: Secure at 12 inches on center in Perimeter (Zone 2) and 6 inches on center in Corner (Zone 3) staggered each direction.
 - I. Select fasteners of size and length that are not exposed from the building interior and/or from the ground, or remove protruding fasteners, paint or finish to eliminate exposure.
 - J. Thickness of wood nailers flush with adjacent insulation and other materials. Install additional fasteners to ensure nailers are flush.
 - K. Unless otherwise detailed, install plywood used as blocking or shim below dimensional lumber such that the fastener head terminates at the dimensional lumber surface.
 - L. Do not utilize wood nailers at roof perimeters, expansion joints, roof area dividers, etc. less than 3 feet long.
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- M. When multiple nailers are installed stacked two high or more, offset nailers no less than 12" such that joints at nailer end do not line-up vertically.
- N. Fasten each end of nailers with additional fasteners to ensure a smooth transition at butted joints, and to prevent warping and/or twisting.
- O. Shims:
 - 1. Provide plywood and lumber shims as required for the specified height and thickness.
 - 2. Shims to make full contact with stacked rough carpentry. Partial shim contact, and small shim pieces spaced apart are not acceptable.
- P. Curbs:
 - 1. Adjust wood curbs to support rooftop piping, ducts, equipment, etc.
 - 2. Raise equipment to provide required flashing height for roofing.

3.4 CLEANING

- A. Ensure the site and building are cleaned to meet pre-construction conditions, as accepted by the Owner.
- B. Clean the site and building of saw dust from lumber, fasteners and other debris.
- C. Repair or replace damages to the building, grounds, equipment and site to meet pre-construction conditions, as accepted by the Owner.

END OF SECTION

SECTION 07 01 50

PREPARATION FOR REROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Complete preparatory work prior to roof installation including but not limited to:
 - a. Removal of roof assemblies down to the steel deck.
 - b. Raising of mechanical units and/or HVAC units to meet the required minimum flashing height.
 - c. Under roof deck survey

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:
 - 1. Section 05 01 30 - Steel Roof Deck Repair and Securement
 - 2. Section 06 10 00 - Rough Carpentry
 - 3. Section 07 22 16 - Roof Insulation
 - 4. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing
 - 5. Section 22 14 26 - Roof Drains

1.3 DEFINITIONS

- A. Removal: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain property of the Owner.
- B. Existing to remain: Protect construction indicated to remain against damage and soiling during demolition. When accepted by Engineer, items may be removed to a suitable, protected storage location during demolition, cleaned and reinstalled in their original locations.
- C. Material ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished items become the Contractor's property. Remove demolished items from the site.

1.4 REFERENCE STANDARDS

1.5 SUBMITTALS

1.6 EXISTING ROOF ASSEMBLIES

- A. Refer to Contract Drawings for existing roof system composition.

1.7 QUALITY ASSURANCE

- A. Qualifications: Previous experience removing roof systems.
- B. Requirements: Comply with governing EPA regulations and hauling/disposal regulations of authorities having jurisdiction.

1.8 SCHEDULING

- A. Do not disrupt Owner's operations during demolition. Provide 72 hours notification to Owner of activities that affect Owner's operations.

1.9 WARRANTIES

- A. Repair or replace damage to existing items under warranty with materials acceptable to the Warrantor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Survey conditions to determine extent of demolition.
- B. Record the conditions of items to be removed/reinstalled and items to be removed/salvaged.
- C. Do not remove elements that result in structural deficiency or collapse the structure or adjacent structures during demolition.
- D. Inspect substrate for soundness and notify Engineer in writing of deficiencies. Commencement of work signifies acceptance of site conditions.

3.2 PREPARATION

- A. Do not begin demolition until utilities have been disconnected/sealed and have been verified as such in writing.
- B. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner and authorities having jurisdiction.
- C. Provide safe conditions for pedestrians. Erect temporary protection, walkways, fences, railings and canopies as required by OSHA and other governing authorities.
- D. Provide protection for adjacent building, appurtenances and landscaping to remain. Erect temporary fencing around trees to remain.
- E. Provide temporary weather protection as required to prevent water leakage and damaged to exterior or interior of adjacent structures.

3.3 UTILITIES/SERVICES

- A. Maintain utilities that are to remain in service and protect them against damage during selective site demolition unless authorized in writing by the Owner and authorities having jurisdiction.
 - 1. Locate conduits and equipment attached to the underside of the decking prior to reroofing. Do not disturb conduits or interior components/equipment with insulation fasteners.
 - 2. If utilities serving occupied portions of the site are shut down, provide temporary services.
 - 3. Provide 72 hours' notice to Owner if shut down is required.
 - 4. Where services are removed, relocated or abandoned, provide necessary bypass connections to remaining occupied buildings and areas.

3.4 POLLUTION CONTROLS

- A. Use water, mist, temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with local EPA regulations.
 - 1. Do not use water where there is potential for damage to occur or where hazardous conditions, ice or flooding are created.

3.5 UNDER ROOF DECK SURVEY

- A. Prior to work being performed, complete a survey of the under deck components.
- B. Locate and mark conduit, utilities, etc. that interfere with the replacement roof system.
- C. Determine the presence of spray applied fireproofing on the underside of the roof deck. If fireproofing is present, utilize caution when removing and replacing roof system to prevent fireproofing from dislodging. Survey interior of building during tear-off operations and at end of each day. Clean up debris daily. Report displaced fireproofing to the Owner/Engineer.
 - 1. Contractor is responsible to repair displaced fireproofing and repair any interior finishes damaged from the displaced fireproofing.
- D. Notify Owner and Engineer prior to survey being performed.

3.6 REMOVALS

- A. Coordinate and sequence roof removal such that tear-off debris and materials are not stored on or trafficked over the replacement roof system and such that varying heights between roof assemblies does not adversely affect roof drainage.
- B. Demolish and remove construction only to the extent required.
- C. Remove roof membrane, flashings, roof insulation, vapor retarder, and sheet metal and discard.
- D. Remove or correct obstructions which interfere with the proper application of materials.
- E. Lift or remove equipment so that flashings can be replaced.

- F. Remove debris to provide clean, dry substrate.
- G. Remove and transport debris in a manner that prevents damage/spills to adjacent buildings and areas.
- H. Dispose of demolished items and materials on a daily basis. On-site storage of removed items is not permitted.
- I. Transport demolished materials off-site and dispose of materials in a legal manner.
- J. Perform progress inspections to detect hazards resulting from demolition activities.

3.7 FLASHING HEIGHTS

- A. Permanently raise roof top equipment as required to achieve 8" minimum flashing height.
- B. Provide additional wood blocking to top of parapet walls and expansion joints to achieve minimum 8" flashing height.
- C. Extend sanitary vents to height required by the applicable Plumbing Code, but no less than 8 inches and no more than 12 inches above the finished roof system.

3.8 CLEANING

- A. Inspect the site daily and clean up debris and hazards at the end of each day. Keep adjacent roads, drives and walkways in operation and free from construction materials debris.
- B. Clean adjacent structures of dust dirt and debris. Return adjacent areas to original conditions to the satisfaction of the Owner.

END OF SECTION

SECTION 07 22 16

ROOF INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide roof insulation system as specified in Section 01 11 00 - Summary of Work and as indicated in Contract Drawings.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections, apply to this Section:

1. Section 05 01 30 - Steel Roof Deck Repair and Securement
2. Section 06 10 00 - Rough Carpentry
3. Section 07 01 50 - Preparation for Reroofing
4. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing
5. Section 22 14 26 - Roof Drains

1.3 REFERENCE STANDARDS

- A. ASTM C728 - Standard Specification for Perlite Thermal Insulation Board; 2017a (Reapproved 2022).
- B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2024.
- C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2025.
- D. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.
- F. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2024c.

1.4 PERFORMANCE REQUIREMENTS

A. R Value

1. In accordance with the referenced Energy Conservation Code and ASHRAE 90.1.
2. Minimum continuous R-value: 20

3. R value based on Long-Term Thermal Resistance (LTTR) for polyisocyanurate insulation and manufacturer's published data for other insulation components, as tested in accordance with specified the specified.
- B. Wind Design: Install insulation system to meet the required wind uplift pressures as specified in Contract Drawings.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: Tapered insulation plan from material supplier with minimum R-value for each roof area.

1.6 QUALITY ASSURANCE

- A. Install insulation in accordance with their respective manufacturer's requirements.
- B. Reject insulation not bearing UL label at point of delivery.
- C. Remove insulation damaged or wetted before, during, or after installation from the job site no later than the next working day from the day such damage or moisture contamination is noted.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging.
- B. Storage: Store materials out of direct exposure to the elements on pallets or dunnage at least 4 inches above ground level at location acceptable to Owner.
 1. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
 2. Install vapor retarders under material storage areas located on the ground.
 3. Remove damaged or deteriorated materials from the job site.
 4. Store adhesives in accordance with manufacturer's instructions.
- C. Handling: Handle material in such a manner to prevent damage and contamination with moisture or foreign matter.

1.8 PROJECT CONDITIONS

- A. Do not apply insulation during precipitation. Take responsibility for starting installation in the event there is a probability of precipitation occurring during application.
- B. Take necessary action to restrict dust, asphalt, and debris from entering the structure.
- C. Do not remove more roofing than can be replaced with insulation, membrane and flashings in the same day to create a watertight installation.

PART 2 PRODUCTS

2.1 MATERIALS

A. Insulation Boards:

1. Gypsum Substrate:

- a. Nonstructural, glass mat faced gypsum panel with 500 psi moisture resistant treated core, Type X per ASTM C1177/C1177M, approved for use in UL P assemblies as a thermal barrier, and tested in accordance with ASTM E84 and ASTM E136. Board Size: 4 feet by 8 feet. Thickness of 5/8 inch. Provide non-asphaltic primer surfacing if adhering insulation to gypsum substrate. Acceptable manufacturers include:

- 1) GP DensDeck Fireguard Roof Boards
- 2) DEXcell Glass Mat Roof Board

2. Roof Insulation:

- a. Rigid polyisocyanurate roof insulation board complying with ASTM C1289 Type II, Class 2, Grade 2 and meeting the following requirements:
 - 1) Factory applied coated polymer bonded glass fiber mat facers on the top and bottom.
 - 2) 24 hours minimum curing time, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
 - 3) 2 percent maximum linear change dimensional stability when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
 - 4) Maximum permissible insulation board size for mechanical attachment is 4 feet by 8 feet and for foam adhesive and hot asphalt attachment is 4 feet by 4 feet. Field cutting of larger boards is not acceptable.
 - 5) Thickness: as indicated in Contract Drawings

3. Tapered Insulation Crickets and Saddles:

- a. Rigid polyisocyanurate roof insulation board complying with ASTM C1289 Type II, Class 2, Grade 2 and meeting the following requirements:
 - 1) Factory applied coated polymer bonded glass fiber mat facers on the top and bottom.
 - 2) Curing time: 24 hours minimum, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
 - 3) Dimensional stability: 2 percent maximum linear change when conditioned at 158 degrees F and 97 percent relative humidity for seven days.

- 4) Board size: 4 feet by 4 feet.
- 5) Slope: 1/2 inch per foot
- 6) Minimum thickness: 1/2 inch
- 7) Fill Insulation: Rigid polyisocyanurate meeting the above requirements with board size of 4 feet by 4 feet and thickness of 2 inches.

4. Cover Board:

- a. Cover board approved by roof system manufacturer. Board Size: 4 feet by 8 feet. Minimum thickness as listed below or as required by roof system manufacturer.
 - 1) Georgia Pacific 1/4 inch DensDeck Prime Roof Board
 - 2) Soprema 1/4 inch Sopraboard
 - 3) DEXcell 1/4 inch FA Glass Mat Roof Board

B. Insulation Accessories:

1. Tapered Edge Strip:

- a. Perlite: Asphalt impregnated perlite tapered edge strips with 1 inch per foot slope of sizes indicated in Contract Drawings or required by field conditions meeting ASTM C728.

2. Cant Strips:

- a. Perlite: Asphalt impregnated perlite cant strips of size detailed or required by field conditions meeting ASTM C728. Walls and vertical terminations to receive 4-inch vertical leg cant strip with 5-5/8 inch face unless height restrictions dictate smaller sizes.

C. Insulation Mechanical Attachment Materials:

1. Steel Deck Fasteners and Stress Plates: Corrosion resistant 3-inch galvalume stress plate and corrosion resistant screw type fasteners for use with steel decks; approved by the insulation manufacturer for the insulation type, thickness and board size specified; fastener length as required by the fastener manufacturer for the insulation thickness specified, and to penetrate the deck a minimum of 3/4 inch and a maximum of 1-1/4 inch.

D. Adhesives:

1. Foam Adhesive: One or two part, VOC compliant, moisture-cured polyurethane foamable adhesive designed as roof insulation adhesive and approved by insulation manufacturer.
 - a. Primer: Provide as required by adhesive manufacturer and substrate conditions.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Inspect substrate for soundness and notify Engineer in writing of deficiencies.
- B. Commencement of work signifies acceptance of substrates. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

3.2 PREPARATION

- A. Dry and broom roof deck clean of debris and foreign matter prior to installation of insulation system.

3.3 APPLICATION

- A. General
 - 1. Apply in accordance with the insulation and roof system manufacturer's instructions and these specifications.
 - 2. Install insulation in full boards, carefully fitted and pushed against adjoining sheets to form tight joints. Gaps exceeding 1/4 inch are not acceptable.
 - 3. Saw cut or knife cut insulation and cover boards in a straight line, not broken. Utilize chalk lines to cut insulation. Uneven or broken edges are not acceptable.
 - 4. Remove insulation dust and debris that develops during insulation cutting operations.
 - 5. Offset joints between successive and adjacent layers of insulation a minimum of six inches.
 - 6. Stagger joints of cover boards one foot (vertically and laterally) to ensure that joints do not coincide with joints from the previous or adjacent layer.
 - 7. On steel decks, apply insulation boards with long dimension of units across deck ribs. Bear ends of insulation boards on top flange of steel deck.
 - 8. For torch application, continue coverboard over combustible substrates.
 - 9. Install crickets, saddles and tapered edge strips before the cover board.
 - 10. Adhere cant strips and tapered edge strips at transitions, terminations and/or penetrations as detailed or required ribbons of foam adhesive to ensure smooth transitions are provided for the roof membrane and flashings.
 - 11. Provide necessary modifications to insulation system or nailers at roof edges as required to ensure a flush and smooth transition is provided for the roof membrane and flashing.
 - 12. Make field modifications of insulation, tapered insulation, tapered edge strips and cants where required to accommodate roof and flashing conditions and to prevent water dams and ponding water. Ponding water at scuppers and cricket valleys is not acceptable.
 - 13. Ponding Water:

- a. The ponding of water on the roof surface after installation of the roofing system is not acceptable and is grounds for rejection of the roof.
- b. Ponding is herein defined as precipitation remaining in a four-square foot area or larger, 1/4 inch or deeper for a period of 24 hours from the termination of precipitation.
- c. Provide modifications to insulation system to ensure proper drainage and prevent standing water including but not limited to reinstallation of roof system or installation of additional tapered insulation.

B. Tapered Insulation System:

- 1. Install tapered insulation system to provide positive slope for roof drainage without ponding water.
- 2. Size crickets as shown in the Contract Drawings. Provide modifications to ensure positive slope and prevent standing water along the cricket valley.
 - a. Minimum length to width ratio of 2:1. Fabricate partial crickets with dimensions which result in a minimum length to width ratio of 2:1 if they were extended to full size.
 - b. Unless otherwise noted, fabricate crickets from tapered stock as required to provide the specified minimum slope. For example, when roof slope is indicated as 1/4 inch per foot minimum, fabricate crickets with slope of 1/2 inch per foot minimum.
 - c. Construct crickets on up slope side of curbs to ensure positive drainage.
 - d. Install tapered edge strips at cricket edges to provide a smooth transition between the cricket and insulation system below.
- 3. Insulation boards may require mechanical fasteners and stress plates at slope transition of crickets to minimize bridging.

C. Roof Drainage:

- 1. Install drainage sumps as detailed.
- 2. Carefully lay out the tapered insulation, sumps, drain bowls and scuppers to ensure the finished roof provides drainage with no ponding water.
- 3. Fabricate miter-cut sumps at drains/scuppers to provide smooth transitions between the insulation system and the drains/scuppers.
- 4. Ensure sumps provide roof drainage and prevent water dams.
- 5. Adjust insulation, drains and scuppers to ensure roof drainage and satisfactory substrates for membrane and flashings.
- 6. Secure drain sump components using specified insulation fasteners or adhesives.
- 7. Circular sumps and sumps that do not provide smooth transition or that create standing water at the drains are not allowed.

D. Tapered Edge Strips:

1. Install at edges to make transitions as detailed in Contract Drawings.
2. Provide to form crickets in front of curbs wider than 12 inches.
3. Provide slope transition at the outside of drainage sumps.
4. Provide slope at top of parapet walls below coping.
5. Use 1/2 inch by 6 inch tapered edge strips in front of tapered insulation crickets to provide smooth transition.

E. Insulation Mechanical Attachment:

1. Fastener quantity and spacing as required to comply with the requirements of roof system manufacturer's approved, tested assembly.
2. Install fasteners using manufacturer's recommended equipment and in accordance with the manufacturer's requirements.
3. Set fasteners and stress plates secure and tight against the insulation surface and do not over drive.
4. Fasteners to engage the top flange of steel decks only.
5. For Nailable Cross Ventilated Roof Insulation, install insulation boards with vent channels parallel to the roof slope. Ensure that vent channels are aligned at butt joints.

F. Foam Adhesive:

1. Position and space adhesive beads as required to comply with the requirements of the roof system manufacturer's approved, tested assembly.
2. Size adhesive beads in accordance with the adhesive manufacturer's guidelines.
3. Place insulation boards onto the beads and "walk" and/or "weight" into place. Place insulation boards into the adhesive in accordance with the adhesive manufacturer's guidelines.
4. Ensure adhesion of insulation and take whatever steps necessary to achieve adhesion, including but not limited to temporary ballasting of insulation until adhesive sets.

END OF SECTION

SECTION 07 42 13
METAL WALL PANELS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Provide prefinished, prefabricated nonstructural flush seam wall panels with interlocking seams exposed fastener wall panel providing cladding protection of a weather barrier substrate.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections, apply to this Section:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 07 62 00 - Sheet Metal Flashing and Trim

1.3 REFERENCE STANDARDS

- A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2025.
- B. ASTM D523 - Standard Test Method for Specular Gloss; 2025.
- C. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2025.

1.4 PERFORMANCE REQUIREMENTS

- A. Design Requirements:
 - 1. Provide factory preformed wall panel system tested and certified by the manufacturer to comply with specified requirements under installed conditions.
 - 2. Provide one-piece, single length wall panels.
 - 3. Provide continuous interlocking seams with open hem male legs that inherently increases load span capability, stiffness, and flexural stress handling.
- B. Attachment of Panels as determined in accordance with ASTM E1592 along with holding strength of fasteners to structure in accordance with submitted test data, provided by fastener manufacturer, based on length of embedment and properties of materials.
 - 1. Do not exceed 4 feet on center for fastener spacing for attachment of panels.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: Show details, trim pieces, transitions and closures necessary to install wall panels.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Minimum of 10 years' experience supplying metal siding to the region where the work is performed.
- B. Installer Qualifications:
 - 1. Acceptable to, licensed or certified by manufacturer.
 - 2. Not less than 3 years' experience with systems.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect against damage and discoloration.
- B. Handle panels with non-marring slings.
- C. Do not bend panels.
- D. Store panels above ground, with one end elevated for drainage.
- E. Protect panels against standing water and condensation between adjacent surfaces.
- F. If panels become wet; separate sheets, wipe dry with clean cloth, and allow to air dry.
- G. Remove strippable film coating prior to installation and do not allow it to remain on the panels in extreme cold, heat or in direct sunlight.
- H. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 WARRANTY

- A. Finish Warranty: Provide manufacturer's written panel finish warranty against deterioration of factory applied finishes.
 - 1. Warranty Period: Minimum period of 40 years from date of Substantial Completion.
 - 2. Prorated Conditions: None.
 - 3. Limitations of liability: No Dollar Limit (NDL)
 - 4. Do not include "hold harmless" clause, nor limit liability of Contractor.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers:
 - 1. Construction Metal Products (CMP)
 - 2. DMI
 - 3. MBCI
 - 4. McElroy
 - 5. Merchant & Evans
 - 6. Metal Roofing Systems
 - 7. Metal Sales

2.2 PRODUCTS

- A. Flush Seam Wall Panels:
 - 1. Base Metal: 24-gauge, Galvalume coated steel meeting or exceeding AZ50 per ASTM A792/A792M.
 - 2. Face: Manufactured with two radii stiffening ribs.
 - 3. Panel size: 12 inches in width.
 - 4. Seam size: Nominal 1 inch deep interlocking seams with a structurally qualifying open hem on the male leg.

2.3 RELATED MATERIALS

- A. Fasteners:
 - 1. Flush Seam Panel Screws:
 - a. For metal: #10-16 x 1" long self-drilling, self-tapping pancake head Phillips drive screws.
 - 2. Blind Rivets: Solid-threaded, sealed stem type with EPDM washer under head and factory painted heads to match wall panel finish color.
- B. Accessories:
 - 1. Provide manufacturer's standard accessories and other items essential to completeness of installation including anchor clips, trim, corner closures, flashing, and fascia.
 - 2. Form flashings, closure, and trim from same gauge and finish as wall panels.
- C. Metal Wall Panel Underlayment: Self-adhered, air barrier membrane with an engineered film specifically designed to be water resistant and vapor permeable.

1. Grace Perm-A-Barrier VPS
 2. VaproShield WrapShield SA
 3. Henry Blueskin VP 160
- D. Sealant: Refer to Section 07 62 00 - Sheet Metal Flashing and Trim. Sealant color to match wall panel.

2.4 FABRICATION

- A. Correctively leveled and handled to minimize stress and waviness of sheet steel.
- B. Form and fabricate sheets, seams, strips, clips, valleys, ridges, edge treatments, integral flashings, and other components of the metal roofing to the profiles, patterns, and drainage arrangements as determined by Engineer, to provide permanent leakproof construction, with no oil canning or panel distortion.
1. Fabricate exposed items of prefinished sheet metal, color to match panels.
 2. Hem exposed edges on underside 1/2-inch miter and seam corners.
 3. Provide for thermal expansion and contraction of the Work.
 4. Seal joints to achieve leak proof construction per manufacturer's detail.
- C. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- D. Provide continuous length panels with no end laps.
- E. Factory form panels. Field formed panels are not acceptable.

2.5 FINISH

- A. Exterior Finish:
1. 70 percent Kynar 500/Hylar 5000 for a total 1.0 mil dry film thickness with a specular gloss of 10-15 percent when tested in accordance with ASTM D523 at 60 degrees.
- B. Interior Finish:
1. Primer Coat Material: Corrosion-resistant primer; primer coat dry film thickness: 0.15 mils; finish coat material: polyester paint, finish coat dry film thickness: 0.35 mils.
 2. Total Interior Dry Film Thickness: 0.50 mils.
 3. Color: Off-White.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Substrate:

1. Examine substrate to ensure that it is properly secured and prepared to receive metal wall panels.
2. Ensure substrate is installed flat, free from objectionable warp, wave, and buckle.

3.2 INSTALLATION

A. Metal Wall Panels:

1. Follow panel manufacturer's directions.
2. Install panel seams vertically.
3. Lap panels away from prevailing wind direction.
4. Do not stretch or compress panel side-laps.
5. Secure panels without warp or deflection.
6. Clean and dry surfaces prior to applying sealant.
7. Exposed fasteners are not allowed, except to fasten flashings, at fixed points, or as indicated on Drawings.
8. Field apply sealant to penetrations, transitions, and other locations necessary to prevent water infiltration.
9. Leave 1/4-inch space between bottom of metal wall panels and receiver flashing.

B. Flashing:

1. Follow manufacturer's directions and Engineer accepted Shop Drawings.
2. Install flashings to allow for thermal movement.
3. Remove strippable protective film preceding flashing installation.
4. Make end cuts and install sealant and flashings to achieve weathertight installation.

C. Cutting and Fitting:

1. Neat, square and true. Torch cutting, electric saws and grinders with abrasive wheels are prohibited where cut is exposed to final view.
2. Openings 6 inches and larger in one direction: Shop fabricate and reinforce to maintain original load capacity.
3. Where necessary to saw-cut panels, debur cut edges.

D. Dissimilar Metals:

1. Where sheet metal is in contact with dissimilar metals, execute juncture to facilitate drainage and minimize possibility of galvanic action.
2. At point of contact with dissimilar metal, coat metal with protective paint or tape which can be placed between metals.

3.3 PROTECTION

- A. Protect work as required to ensure no metal wall panel system damage at time of final completion.
- B. Do not allow panels or trim to come in contact with dissimilar metals including copper, lead or graphite. Control water run-off from dissimilar materials.
- C. Remove metal dust and cut debris produced by cutting, drilling and fastening. Do not allow metal dust and cut debris to remain on pre-finished metal panels.
- D. Prevent metal chips, shavings, etc. from staining the building, roof and associated fixtures and components. Remove rust stains.
- E. Prevent damage during cleaning activities. Do not allow cleaning materials and methods to damage building, grounds, components or fixtures.

3.4 REPAIRS

- A. Touch up minor scratches and abrasions with touch up paint supplied by the metal roof system manufacturer. Minor scratches are considered scratches that extend into the finish only, not down to the base metal:
 - 1. Scratches that extend into the paint finish only and not down to the base metal.
 - 2. Scratches that do not extend more than 4 inches in length.
 - 3. Where no more than 2 scratches in lengths of less than 4 inches are present in a 1 sf area of a metal roof panel.
- B. Replace significantly scratched metal panels.
 - 1. Scratches that extend down to the base metal.
 - 2. Scratches that extend more than 4 inches in length.
 - 3. Where more than 2 scratches in lengths less than 4 inches are present in a 1 sf area of a metal roof panel.
 - 4. Where touch up paint is visible when viewing the metal roof panels from a common pedestrian area from the ground as judged by the Owner and Engineer.

END OF SECTION

SECTION 07 52 16.13

TORCH-APPLIED MODIFIED BITUMEN ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide a torch-applied modified bituminous membrane system consisting of two plies of asphalt elastomeric membrane reinforced with polyester and/or fiberglass mat.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections apply to this Section:

1. Section 06 10 00 - Rough Carpentry
2. Section 07 01 50 - Preparation for Reroofing
3. Section 07 22 16 - Roof Insulation
4. Section 07 62 00 - Sheet Metal Flashing and Trim
5. Section 22 14 26 - Roof Drains

1.3 REFERENCE STANDARDS

- A. ASTM D41/D41M - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing; 2011 (Reapproved 2023).
- B. ASTM D1668/D1668M - Standard Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing; 1997a (Reapproved 2021).
- C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2024).
- D. ASTM D5147/D5147M - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material; 2018.
- E. ASTM D5849 - Standard Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement); 2007.
- F. ASTM D6163/D6163M - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements; 2021.
- G. ASTM D6164/D6164M - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements; 2021.
- H. ASTM D6222/D6222M - Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements; 2016 (Reapproved 2023).

- I. ASTM D6509/D6509M - Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements; 2009.
- J. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2025.
- K. FM 4470 - Examination Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction; 2022.
- L. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.
- M. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.
- N. UL 1897 - Uplift Tests for Roof-Covering Systems; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.4 PERFORMANCE REQUIREMENTS

- A. Install roofing system to meet UL 790 Class A/ASTM E108 Class A Fire Rating.
- B. Wind Uplift Strength: Provide an approved, tested roof assembly in accordance with FM 4470, UL 580, or UL 1897 to resist the minimum required wind uplift strength specified in the Contract Drawings.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Roof System Assembly Letter: Letter from roof system manufacturer listing roof assembly components along with their method of attachment and acceptance of the specified roof system warranty terms. Assembly letter should match the submitted test report documentation and specified assembly.
- D. Test Reports: Submit documentation of approved, tested roof system to meet the specified requirements for the following:
 - 1. Wind uplift pressures
 - 2. UL Fire Resistance Rating

1.6 QUALITY ASSURANCE

- A. Contractor Qualifications:
 - 1. Approved by the roof membrane manufacturer and have the experience of 5 similar roof projects. Provide verification of similar experience to the Engineer upon request.
- B. Manufacturer Qualifications:

1. Producing modified bitumen products in the United States for a minimum of 10 years.
 2. Maintained a consistent composition for a minimum of five years without a change in the basic product design or SBS modified bitumen blend (e.g. no substantive changes in product composition, polymer specification, asphalt or filler formulation).
- C. Inspect the base ply and reinforcing/stripping ply application by the Contractor and Manufacturer's technical representative. Repair and prepare to meet the Manufacturer's requirements prior to installing the surface ply.
- D. Do not exceed exposure limits of the base ply for longer than the manufacturer's maximum requirement. Base ply exposed longer than the maximum requirement is subject to rejection or additional remedial requirements prior to application of the surface ply.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery. Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.
- B. Storage: Store materials out of direct exposure to the elements on pallets at least 4 inches above ground level at location acceptable to the Owner.
1. Storage trailers are acceptable provided they are equipped with a lock and located at a site location acceptable to the Owner.
 2. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
 3. Install vapor retarders under material storage areas located on the ground.
 4. Store roll goods on end on a clean flat surface.
 5. Remove damaged or deteriorated materials from the job site.
- C. Handling. Handle material in such manner as to preclude damage and contamination with moisture or foreign matter.

1.8 PROJECT CONDITIONS

- A. Environmental Requirements:
1. Do not apply roofing during precipitation. Do not start roofing operations in the event there is a probability of precipitation during applications.
 2. Do not apply the membrane or flashings at or below the dew point temperature.
 3. When conditions are damp and where adjacent roof areas have moisture or dew, dry surfaces to prevent tracking water over the membrane substrates.
 4. At ambient temperatures of 40°F and below, including wind chill, take precautions to ensure adhesives and other materials maintain the minimum acceptable temperature at the point of roofing application as recommended by the membrane manufacturer.
- B. Protection:

1. Protect against staining and mechanical damage of adjacent surfaces and work areas during application. Staining, mechanical damage, or discoloration of the membrane is cause for rejection.
 2. Protect materials being installed and storage of materials against wind related damage.
- C. Torch Operation and Safety: Refer to Section 01 35 00 - Hot Work Operations for torch operation and safety.

1.9 WARRANTY

- A. Manufacturer's Guarantee: Manufacturer's standard form, non-pro-rated, without monetary limitation or deductibles, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks or breaches in the primary roof membrane causing moisture to enter the substrate below (even if visible leaks are not observed inside the facility).
1. Warranty Period: 20 years from date of Substantial Completion
 2. Warranty to remain in effect for wind speeds up to 72 mph.
 3. Warranty to include materials specified in this section and those specified in other sections as follows:
 - a. 07 22 16 - Roof Insulation
 - b. Retrofit Roof Drains as specified in Section 22 14 26 - Roof Drains
 4. Warranties requiring the Owner's signature are not acceptable.
- B. Contractor's Warranty:
1. Two Year Warranty: Manufacturer's Representative and Contractor's Representative will attend post construction field inspection no earlier than one month prior to the expiration date of the Contractor's Warranty. Submit a written report within seven (7) days of the site visit to the Engineer listing observations, conditions and recommended repairs or remedial action.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements herein, provide roof system from a single source by one of the following manufacturers:
1. Performance Roofing Systems
 2. Siplast
 3. Soprema, Inc.

2.2 MEMBRANE MATERIALS

- A. Roof Membrane:

1. A dimensionally stable roof membrane assembly consisting of 2 plies of a prefabricated, reinforced, homogeneous modified asphalt membrane torch applied to a prepared substrate.
 - a. Both reinforcement mats impregnated and coated each side with a high-quality modified bitumen blend of Styrene-Butadiene-Styrene (SBS) or Atactic Polypropylene (APP).
 - b. Pass ASTM D5849 at 14°F. Passing results show no signs of membrane cracking or interply delamination after 500 cycles as manufactured and 200 cycles after heat conditioning according to ASTM D5147/D5147M.
 2. Base Ply Membrane: Glass fiber and/or polyester reinforced ply sheet manufactured for torch application, meeting or exceeding requirements of ASTM D6163/D6163M, ASTM D6164/D6164M or ASTM D6509/D6509M, Type I or II, Grade S.
 - a. Performance Derbibase Ultra
 - b. Siplast Paratech Glass Base 3.0 TG
 - c. Soprema Elastophene Flam
 3. Surface Ply Membrane: Glass fiber and/or polyester reinforced ply sheet manufactured for torch application, meeting or exceeding requirements of ASTM D6163/D6163M, ASTM D6164/D6164M or ASTM D6222/D6222M, Type I or II, Grade G. Granules to be white.
 - a. Performance Derbicolor P-FR
 - b. Siplast Paratech Glass Cap FR TG
 - c. Soprema Elastophene Flam LS FR GR
- B. Flashings: Consist of a minimum of two plies.
1. Reinforcing/Stripping Ply (for use over noncombustible substrates only):
 - a. Performance Roof Systems: Same as Base Ply
 - b. Siplast Paratech 180 Base TG
 - c. Soprema Sopralene Flam 180
 2. Flashing/Target Ply:
 - a. Performance Roof Systems: Same as Surface Ply
 - b. Siplast Paratech 180 Cap FR TG
 - c. Soprema Sopralene 180 Flam FR GR
- C. Fluid Applied Flashing: Membrane manufacturer's PMMA based resin with polyester fleece flashing system.
1. Performance Derbiflash

2. Siplast Parapro
3. Soprema Alsan RS

2.3 RELATED MATERIALS

- A. Asphalt primer: ASTM D41/D41M and be approved for intended use by membrane manufacturer.
- B. Solvent Free Adhesive: A single component, solvent-free adhesive designed for application of the specified roof membrane in areas below the fluid applied flashing.
 1. JM MBR Bonding Adhesive
 2. Siplast SFT Adhesive
 3. Soprema Colply EF Adhesive
- C. Utility Roof Cement: An asphalt cutback general utility mastic, reinforced with non-asbestos fibers, used as a base for setting metal flanges and temporary seals conforming to ASTM D4586/D4586M Type II requirements.
- D. Sealant: An SBS polymer modified asphaltic flashing cement in a 10.4-ounce cartridge conforming to ASTM D4586/D4586M requirements approved by the roofing membrane manufacturer for use in conjunction with the roofing membrane materials.
- E. Ceramic granules: Color scheme matching the granule surfacing of the cap sheet comparable to No. 11 granules.
- F. Reinforcing Fabric: Woven fiberglass fabric treated with asphalt primer conforming to ASTM D1668/D1668M and approved by roof system manufacturer for intended use.
- G. Walk Pad Material: Prefabricated (by the membrane manufacturer), puncture resistant polyester core reinforced, polymer modified bitumen sheet material topped with a ceramic granule wearing surface.

2.4 FASTENERS

- A. Base Flashing Fasteners (Wood): Stainless steel or hot dipped galvanized ring shank nail with 1 inch diameter cap, minimum 1 inch length and approved by the membrane manufacturer for inclusion in warranty:
- B. Base Flashing Fasteners (Concrete/Masonry): 1/4-inch diameter metal-based expansion anchor for use in concrete or masonry substrates with length to penetrate substrate a minimum of 1-1/2 inch.
- C. Termination Bar: 1/8-inch by 1-inch aluminum or stainless-steel flat bar with pre-drilled oversized or slotted holes 6 inches on center.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Conduct a pre-job conference including the Owner, Engineer, Contractor, and the membrane manufacturer's representative prior to the application of the roofing.

- B. Verify work penetrating the roof deck or work affecting the roofing has been properly completed.
- C. Inspect insulation system substrate prior to application of membrane. Commencement of work signifies acceptance of substrate. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

3.2 PREPARATION

- A. Sweep or vacuum surfaces prior to commencement of roofing.
- B. Coordinate closure of air intakes prior to application of primer and cold adhesives.
- C. Unroll membranes and allow to relax in accordance with membrane manufacturer's recommendations or a minimum of thirty minutes, whichever is greater.
- D. Where walls, curbs, expansion joints, etc. present an unacceptable substrate for flashing and where flashings substrates are combustible, fasten a layer of non-combustible cover board to provide a suitable substrate for flashing.

3.3 APPLICATION

- A. General:
 - 1. Apply roofing in accordance with roofing system manufacturer's instructions and the following requirements.
 - 2. Complete base ply application following base sheet/insulation system application as a continuous operation on the same work day.
 - 3. Aesthetic Considerations: An aesthetically pleasing overall appearance of the finished roof application is required. Make necessary preparations, utilize recommended application techniques, apply the specified materials (i.e. granules, etc.), and exercise care in ensuring that the finished application is acceptable to the Owner. Excessive footprints or impressions in the surface ply are grounds for rejection thereby requiring membrane replacement.
 - 4. Priming:
 - a. Prime metal flanges, concrete and masonry surfaces with a uniform coating of asphalt primer.
 - b. Provide coverage of primer to ensure surfaces are dark brown to black with minimum application rate of 1 to 1-1/4 gallons.
 - c. Allow primer to dry prior to application of asphalt/adhesive.
 - 5. Inspect membrane and flashing application each day. Repair deficiencies daily prior to beginning or resuming other work.
 - a. Cut open and remove membrane deficiencies as necessary.
 - b. Make repairs to extend from lap to lap.
- B. Roof Membrane:

1. Apply membrane in accordance with the manufacturer's instructions and the following requirements.
2. Apply layers of roofing free of wrinkles, creases or fishmouths.
3. Exert sufficient pressure by use of roller or broom on the roll during application to ensure prevention of air pockets.
4. Stagger the lap seams between the base ply layer and the surface ply layer.
5. Apply layers of roofing perpendicular to the slope of the deck with laps shingled to prevent back water laps or strap as required by roof membrane manufacturer due to slope.
6. Back nail as required by roof membrane manufacturer due to roof slope.
7. Bond the base ply to the prepared substrate, utilizing minimum 3-inch side and end laps. Apply each sheet directly behind the torch applicator. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps following sheet application. Stagger end laps a minimum of 3 feet.
8. Bond the surface ply to the base ply, utilizing minimum 3-inch side and end laps. Apply each sheet directly behind the torch applicator. Stagger end laps of the surface ply a minimum 3 feet. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps following sheet application. Stagger side laps of the surface ply a minimum 12 inches from side laps in the underlying base ply. Stagger end laps of the surface ply a minimum 3 feet from end laps in the underlying base ply.
9. Follow membrane manufacturer's recommendations if hot air welding of laps is required.

C. Torch:

1. Utilize heat welders experienced in torch application.
2. Do not torch over combustible substrates, utilize self-adhered membranes.
3. Warm the surface to which the membrane is being applied, preheat portions of the roll and melt the modified asphalt on the back of the sheet to adhere the membrane. The area of the roll where the modified asphalt is being melted is the most critical. Heat roll evenly across the width of the sheet being heat welded.
4. Ensure a small bead of asphalt precedes the roll as it is laid down. Ensure bead of asphalt flows out on both sides of the sheet and be visible.
5. Granule Embedment: Embed granules at locations where membrane material is installed over a granulated surface and a selvage edge is not present. Using a torch or embedment tool, heat the area and push the granules down into the heated bitumen. Do not scrape or remove the granules from the surface.

D. Water cut-off: At end of day's work, or when precipitation is imminent, construct a water cut-off at open edges. Cut-offs can be built using asphalt or plastic cement and roofing felts, constructed to withstand protracted periods of service. Remove cut-offs prior to the resumption of roofing.

E. Flashings:

1. Install concurrently with the membrane installation.
2. Prior to installing flashings over plywood substrates, install a layer of rosin paper and base sheet. Secure to plywood with specified fasteners at 6 inches on center staggered.
3. Prior to torch application along walls or cant strips, provide self-adhered flashing ply in accordance with the below requirements to fully cover combustible materials or gaps in roof deck to wall surface.
4. Base flashing consists of a reinforcing ply and flashing ply.
 - a. Lap reinforcing ply a minimum of 3 inches at side laps, extend a minimum of 4 inches onto the base ply from the base of the cant and extend a minimum of 3 inches up the vertical termination above the toe of the cant or as noted in the detail drawings.
 - b. Lap flashing ply a minimum of 3 inches at side laps, extend a minimum of 6 inches from the toe of the cant onto the surface ply and extend a minimum of 3 inches up the vertical termination above the toe of the cant or as noted in the detail drawings.
 - c. Stagger side laps in the reinforcing ply and flashing ply.
 - d. Cut off the end of the roll and be apply reinforcing ply and flashing ply vertically, always working to a selvage edge.
5. Mechanically terminate base flashing a minimum of 8 inches above the finished roof surface.
 - a. Wood Substrate: Mechanically terminate base flashings using specified fasteners 6 inches on center.
 - b. Concrete/Masonry Substrate: Mechanically terminate base flashing 6 inches on center using specified fasteners and termination bar.
 - c. Gypsum Sheathing Substrate over Metal Stud Wall: Mechanically terminate using specified fasteners and termination bar into each metal stud.
6. Seal top of base flashings and termination fasteners with 3-course of roof cement and reinforcing fabric after termination.
7. Terminate base flashing at roof edges by extending the base flashing at least two inches beyond the edge of the roof and mechanically attaching a termination bar vertically with appropriate fasteners six inches on center. Provide a continuous bead of sealant along outside edge of termination bar.
8. Seal off sheet metal incorporated into the roofing system with stripping ply.
 - a. Torch apply and fit tight to the edge of the sheet metal.
 - b. Extend four inches beyond sheet metal onto roof membrane.
 - c. Install prior to application of surface ply.

9. Provide sealant installed to fill void between edge of sheet metal and surface ply edge (i.e. at metal edge, pipe penetrations, etc.) properly tooled to ensure adhesion and slope to shed water. Broadcast granules into properly installed sealant.

F. Fluid Applied Flashing:

1. Using masking tape, mask the perimeter of the area to receive the flashing system. Apply resin primer to substrates requiring additional preparation and allow primer to set.
2. Pre-cut fleece to ensure a proper fit at transitions and corners prior to membrane application.
3. Refer to manufacturer's installation instructions for application rates and additional installation information.
4. Broadcast granules into horizontal surface of fluid to match adjacent surface ply.

G. Walk Pad Material:

1. Apply walk pad material to a clean, dry surface.
2. Prior to application, cut walk pad material into maximum 5 foot lengths and allow to relax until flat. Use a straight edge or chalk line to ensure straight square cuts. Do not cut the walk pad material directly on the roof surface.
3. Position walk pad material so as to leave minimum 2 inch gaps between panels to allow for proper drainage.
4. Adhere walk pad panels to surface ply with roof cement applied to the back of the panels in spots approximately 5 inches square. Use a notched trowel to keep the cement 3/8-inch thick.
5. Walk-in each panel to ensure contact with the membrane surface.
6. Provide walk pads where indicated in Contract Drawings and at the following locations:
 - a. Around roof hatches.
 - b. At base and top of fixed wall access ladders.
 - c. Around HVAC units.
 - d. At door access to roof areas.

- H. Ponding Water: The ponding of water on the roof surface after installation of the roofing system is not acceptable and is grounds for rejection of the roof. Ponding is herein defined as precipitation remaining in a four-square foot area or larger, 1/4 inch or deeper for a period of 24 hours from the termination of precipitation. Do not install surface ply until verification of proper drainage has been determined. Provide modifications to roof system to ensure proper drainage including but not limited to reinstallation of roof system, installation of additional tapered insulation and/or installation of additional base plies.

3.4 CLEANING

- A. Remove debris and excess material from the roof area. Pick-up loose fasteners and sheet metal scraps.
- B. Clean off/remove excess adhesive, sealant, stains and residue on the membrane and flashing surfaces.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Sheet metal flashings and trim to provide a permanently watertight condition.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and the following Specification Sections, apply to this Section:
 - 1. Section 06 10 00 - Rough Carpentry
 - 2. Section 07 41 13 - Metal Wall Panels
 - 3. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing

1.3 REFERENCE STANDARDS

- A. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems; 2022.
- B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2025a.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).
- D. NRCA (RM) - The NRCA Roofing Manual; 2025.
- E. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: For any transitions and/or terminations not depicted in Contract Drawings.
- D. Test Reports: Submit test reports for edge metal indicating resistance of specified wind uplift pressures.
- E. Color Charts:
 - 1. Pre-finished Sheet Metal

2. Sealants

1.5 MOCK-UPS

- A. Provide mock-ups of the following sheet metal components prior to fabrication of the components:
 - 1. Metal Edge and Fascia Cover: Provide minimum 10-foot length of gravel stop/metal edge and fascia cover. Include at least one lap of each component.

1.6 QUALITY ASSURANCE

- A. Install in accordance with the Contract Drawings.
- B. Ensure work is free of leaks.
- C. Provide metal edge and coping fabricated and tested in accordance with ANSI/SPRI/FM 4435/ES-1 to resist the specified wind uplift pressures.
 - 1. Fabricate metal edge and coping as shown in Contract Drawings and following NRCA (RM) tested details.
- D. Provide sheet metal flashing and trim in accordance with SMACNA (ASMM).
- E. Provide first-class workmanship. Assemble and secure sheet metal work in accordance with these specifications, roof system manufacturer's requirements and referenced standards.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.
- B. Storage: Store materials within areas designated by the Owner. Ensure materials remain dry, covered and not in contact with the ground.
- C. Handling: Handle material in such manner as to preclude damage and contamination with moisture or foreign matter.

1.8 PROJECT CONDITIONS

- A. Environmental: Protect building and its components from the elements.
- B. Coordination and Scheduling: Coordinate phases of work to allow continuity of work without delays.

1.9 WARRANTY

- A. Provide pre-finished sheet metal manufacturer's thirty (30) year finish warranty from the date of substantial completion.

PART 2 PRODUCTS

2.1 PRIMARY SHEET METAL

- A. Material: Pre-finished Galvalume

1. 24-gauge, galvalume coated steel meeting or exceeding AZ50 per ASTM A792. Manufacturer's smooth finish, pre-finished color coatings consisting of 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer on the finish side, with primer and a wash coat on the reverse. Measurements per NCCA Technical Bulletin II-4 or ASTM D1005. Protect the finish during fabrication and installation with a strippable plastic film. Manufacturer's standard color selected by Owner.

B. Components:

1. Slip Flashing
2. Receiver Flashing
3. Counterflashing
4. Fascia Cover
5. Metal Edge
6. Base Flashing Closure
7. Continuous Cleat (use one gauge thicker than primary sheet metal): 22-gauge, galvalume coated steel

2.2 ALUMINUM

- A. ASTM B209 Aluminum Alloy Sheet and Plate, alloy and temper 3003-H14:

2.3 STAINLESS STEEL FLASHINGS

- A. 26-gauge, Type 304, 2B as tested in accordance with ASTM A240/A240M.

1. Flange/Sleeve
2. Watertight Umbrella
3. Multiple Pipe Enclosure Components
 - a. Pipe Enclosure Flashing
 - b. Closure Cap
4. Equipment Support Curb Cover

- B. Compression Bar: 1/4-inch x 1.5 inches, stainless steel, flat bar.

2.4 FASTENERS

- A. Roofing Nails: Minimum 12-gauge stainless steel ring shank roofing nails with diamond point, minimum 3/8 inch diameter head and length as required to penetrate substrate a minimum of 1-1/4 inches.
- B. Screws:

1. Sheet metal to wood attachment (exposed): #12 stainless steel, 5/16 HWH with length to penetrate substrate a minimum of 1-1/2 inches. Provide with bonded EPDM washer or washer specified below. Factory painted heads to match the sheet metal color.
 2. Sheet metal to wood attachment (concealed): #10 stainless steel, low profile pancake head with length to penetrate substrate a minimum of 1-1/2 inches.
 3. Sheet metal to sheet metal attachment (exposed): 1/4 inch x 7/8 inch carbon steel, self-drilling point, self-tapping, zinc alloy hex head screws with bonded EPDM tubular washer under head of fastener; screw heads to match color of wall panel by means of factory applied coating. Factory painted heads to match the sheet metal color.
 4. Sheet metal to light gauge steel attachment (concealed): #14-13 DP1 stainless-steel low-profile pancake head of length as required for three threads to penetrate metal substrate or min. 1 inch penetration through wood substrates.
- C. Concrete and Masonry Anchors: 1/4 inch diameter metal-based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inches. Factory painted heads to match the sheet metal color.
- D. Washers: Stainless steel with neoprene gasket backing.
1. 9/16 inch diameter for use with #12 screws
 2. 5/8 inch diameter for use with 1/4 inch diameter concrete and masonry anchors.
- E. Rivets: #44 stainless steel rivets with stainless steel mandrel and factory painted head to match adjacent sheet metal. Length to properly fasten particular sheet metal components.

2.5 RELATED MATERIALS

- A. Sheet Metal Underlayment: 40-mil minimum thickness sheet; slip-resistant surfacing, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; suitable for high temperature applications up to 250 degrees. Acceptable products include:
1. Mid-States Asphalt Quik-Stick HT
 2. Grace Ice and Water Shield HT
 3. Carlisle WIP 300 HT
 4. Petersen PAC-CLAD HT
- B. Sealants:
1. Silicone Sealant: One-component, non-sag, neutral cure, low-modulus, UV resistant, high performance silicone sealant meeting ASTM C920, Type S, Grade NS, Class 100/50, Use NT, M, G, A or O. Color to match sheet metal color selected by Owner. Acceptable Manufacturers include:
 - a. Dow 790 Building Sealant
 - b. Pecora 890 NST Silicone

- c. Sikasil-WS 290
 - d. Triangle Fastener Corporation Ultra 1000
- 2. Sealant Tape: Minimum 1/2 inch wide, non-skinning, butyl sealant tape.
- 3. Butyl Sealant: Gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant.
- 4. Backer Rod: Closed-cell polyethylene or polyurethane rods sized approximately 25% larger than joint opening.
- C. Solder: 80-20 lead-TIN alloy conforming to ASTM B32.
- D. Flux: Muriatic acid killed with zinc or an accepted brand of commercial soldering flux designed for use with 80-20 solder.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Coordinate with other work for correct sequencing of items.
- B. Ensure substrates are installed, secured and modified to accommodate sheet metal flashings.
- C. Report deficiencies associated with the sheet metal substrates to Engineer before beginning sheet metal work. Correct deficiencies before installing sheet metal flashings.

3.2 INSTALLATION

- A. General:
 - 1. Lock and seal joints of pre-finished sheet metal.
 - 2. Solder joints of stainless steel flashings.
 - 3. Provide for thermal movement (expansion and contraction) of sheet metal.
 - 4. Where dissimilar metals contact, prevent galvanic action by means of heavy coat of asphalt primer or separate with sheet metal underlayment.
 - 5. Prime sheet metal surfaces (top and bottom) to receive bituminous materials. Allow primer to dry before application of bituminous materials.
 - 6. Install metal flanges on top of membrane, adhere and fasten as indicated in detail drawings, specified herein, and in accordance with membrane manufacturer's requirements.
 - 7. Provide uniform sheet metal sections with corners, joints and angles mitered, sealed and secured.
 - 8. Hem (return) exposed edges for strength and appearance.
 - 9. Fit sheet metal close and neat.

10. Provide cleats or stiffeners and other reinforcements to make sections rigid and substantial.
 11. Fabricate, support, cleat, fasten and join sheet metal to prevent warping, "oil canning", and buckling.
- B. Sheet Metal Laps (unless otherwise indicated):
1. Notch and lap ends of adjoining sheet metal sections not less than 4 inches; apply sealant tape or two bead of butyl sealant between sections.
 2. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2 inches on center.
- C. Sheet Metal Underlayment:
1. Adhere to substrates where indicated in Contract Drawings.
 2. Lap adjoining sections a minimum of 3 inches and seal to ensure a redundant layer of moisture protection behind sheet metal
 3. Extend beyond wood blocking a minimum of 1 inch at roof edges, parapet walls and curbs.
 4. Install concurrently with roof membrane and flashing installation. Temporary weather protection utilizing other materials is not acceptable when sheet metal underlayment is specified.
 5. At expansion joints, dip into cavity to allow for expansion.
- D. Fasteners:
1. Size and type required.
 2. Fasteners compatible with materials being joined.
 3. Exposed Fasteners:
 - a. Install screws with 5/16-inch predrilled, oversized holes.
 - b. Install Concrete and Masonry Anchors with 1 1/32-inch predrilled, oversized holes.
 - c. Exposed horizontal surface fasteners are not acceptable.
- E. Flange/Sleeve
1. Fabricate flange/sleeve as shown in detail drawings and to fit tightly to pipe penetration.
 2. Clean and solder seams.
 3. Strip in flange as specified.
- F. Watertight Umbrella:

1. Fabricate watertight umbrellas as shown in detail drawings. Refer to SMACNA (ASMM) Figure 8-9C.
 2. Install watertight umbrella with stainless steel draw band and sealant properly tooled to ensure adhesion and slope to shed water.
 3. Vertical leg of umbrella flashing to extend a minimum of 2 inches below the sleeve top and be positioned as low as possible on the sleeve.
 4. Clean and solder seams.
- G. Multiple Pipe Enclosure:
1. Fabricated pipe enclosure flashing and closure cap as shown in detail drawings. Refer to SMACNA (ASMM) Figure 8-8B or 8-9A depending upon direction of pipes.
 2. Secure pipe enclosure flashing and cap as indicated in detail drawings.
 3. Clean and solder seams of enclosure and cap.
- H. Slip Flashing:
1. Fabricate at curbs as shown in detail drawings in 10 foot lengths.
 2. Extend a minimum of 2 inches below base flashing termination and fit tightly against curb.
 3. Secure at 12 inches on center of a minimum of two fasteners per side of the curb. If slip flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.
- I. Equipment Support:
1. Fabricate Equipment Support Curb Cover at curbs as shown in detail drawings in one continuous piece of sheet metal.
 2. Secure at eighteen inches on center.
 3. Provide soldered end caps.
- J. Receiver Flashing:
1. Fabricate receiver flashing as shown in detail drawings in 10 foot lengths.
 2. Attachment:
 - a. Install receiver flashing surface mounted at 12 inches on center. If receiver flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.
 3. Install sealant properly tooled to ensure adhesion and slope to shed water.
- K. Counterflashing:
1. Fabricate counterflashing as shown in detail drawings in 10 foot lengths.

2. Install counterflashing as indicated in detail drawings and secure to receiver flashing 12 inches on center. If counter flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.
 3. Stagger receiver anchors with counter flashing fasteners.
 4. Extend counter flashing a minimum of 1.5 inches below base flashing termination.
- L. Fascia Cover:
1. Provide fascia cover secured to wood blocking 12 inches on center where indicated in detail drawings.
 2. Lock fascia cover onto continuous cleat if present and hand tong metal edge onto continuous cleat.
- M. Metal Edge:
1. Fabricate metal edge as shown in detail drawings in 10 foot lengths. Refer to SMACNA (ASMM) Figure 2-1 except for continuous cleat dimensions as shown in Contract Drawings.
 - a. Fabricate with 1/2-inch vertical gravel stop at drainage edges and 1-inch vertical gravel stop at non-drainage edges.
 2. Install continuous cleat as indicated in detail drawings fastened to substrate 6" on center. Locate fasteners no greater than 1-3/4 inch from the break at the bottom hem.
 3. Lock metal edge onto continuous cleat and secure flange of metal edge to wood blocking 3 inches on center staggered with first row 1 inch from edge of flange and second row offset 1/2 inch from first row.
 4. Leave a 1/4 inch opening between metal edge sections. Center cover plates over opening, set in roof cement, and install two nails through the center of the cover plate between metal edge sections. Refer to SMACNA (ASMM) Figure 2-5A.
 5. Strip-in flange of metal edge as specified.
 6. Hand tong metal edge onto continuous cleat.
- N. Base Flashing Closure:
1. Install closures where base flashings abruptly end.
 2. Lap and seal joints watertight.
 3. Install closures over membrane and under finish ply of base flashing.
 4. Extend closures up under counterflashings or copings.
 5. Install closures to seal ends of base flashings, membrane and cants as well as end joints of edge metal.

3.3 CLEANING AND PROTECTION

- A. Clean sheet metal work of asphalt, flux, scrapes and dust.

- B. Replace sheet metal components with scratches through the metal finish.

END OF SECTION

SECTION 09 91 13

EXTERIOR PAINT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Prepare substrates, prime and paint in accordance with Manufacturer's instructions for building components specified. Substrates included in the Work are as follows:
 - a. Roof Hatch
 - b. Screen Wall Framing
 - 2. Complete sampling, testing and abatement requirements for existing lead-based paint included in Work.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections apply to this Section.

1.3 REFERENCE STANDARDS

1.4 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Samples: Submit color chart that represents Manufacturer's color samples available for Owner's selection.
- D. Mockup: Submit mockup of paint system before starting work as required by Owner for color selection/acceptance.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver Manufacturer's unopened containers to the work site labeled with the following list of information:
 - 1. Product name, type (description)
 - 2. Application & use instructions
 - 3. Surface preparation
 - 4. VOC content
 - 5. Environmental issues

6. Batch date
 7. Color number
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per Manufacturer's instructions. Protect from freezing.
 - C. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.
 - D. Provide fire safety and prevention requirements for materials.

1.6 PROJECT CONDITIONS

- A. Ensure or maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by Manufacturer for optimum results. Do not apply coatings under environmental conditions outside Manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers:
 1. The Sherwin-Williams Company
 2. Duron, Inc.
 3. PPG Paints
- B. Manufacturer's exterior primer and paint system for optimum performance for exposed, exterior building type, compatible with the following substrate surfaces.
 1. Galvanized Metal

2.2 MATERIALS

- A. Paints and Coatings: Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with Manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in Manufacturer's product instructions.
- B. Primers: Where the Manufacturer offers options on primers for a particular substrate, use primer categorized for optimum performance by the Manufacturer.

2.3 ACCESSORIES:

- A. Coating Application Accessories: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per Manufacturer's printed requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared. Notify Engineer of unsatisfactory conditions before proceeding.
- B. Proceed with work only after conditions have been corrected otherwise application of coatings is considered acceptance of surface conditions.

3.2 PREPARATION

- A. Consult Manufacturer to ensure proper product selection, surface preparation, and application for optimum coating performance. Provide proper product selection, surface preparation, and application.
- B. Ensure surface is dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint, coatings, or other contamination to ensure good adhesion.
- C. Remove mildew before painting by washing with a solution of 1-part liquid household bleach and 3 parts of warm water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry 48 hours before painting.
- D. Do not paint after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50°F, unless products are designed specifically for these conditions. Follow Manufacturer's printed instructions.
- E. Methods:
 - 1. Galvanized Metal: Clean using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast to remove these treatments.

3.3 INSTALLATION

- A. Apply coatings and materials in accordance with Manufacturer printed recommendations. Apply a no less than a single coat of primer, and two coats of paint. Thickness determined by Manufacturer's printed requirements for optimum or best performance.
- B. Do not apply coatings to wet or damp surfaces, during periods of fog, or at or below the dew point temperature.
- C. Apply coatings using methods and application tools recommended by Manufacturer.
- D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.
- E. Apply coatings at spreading rate required to achieve the Manufacturers recommended dry film thickness.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- G. Time between primer and coats as required by Manufacturer's printed requirements.

3.4 PROTECTION

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufactures recommendation for touch up or repair of damaged coatings. Repair defects that hinder the performance of the coatings.

3.5 CLEANING

- A. Clean-up and remove spills, and coatings on adjacent substrates to the Owner's satisfaction.
- B. Dispose of containers and waste in a legal manner.

END OF SECTION

SECTION 22 14 26

ROOF DRAINS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Water test of below grade storm drain leaders and roof drains.
 - 2. Provide retrofit roof drains approved by roof system manufacturer.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications sections apply to this section, including but not limited to:
 - 1. Section 07 01 50 - Preparation for Reroofing
 - 2. Section 07 22 16 - Roof Insulation
 - 3. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing

1.3 REFERENCE STANDARDS

1.4 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: Include plans, elevations, sections and details.

1.5 QUALITY ASSURANCE

- A. Ensure plumbing systems and components are installed by licensed, qualified personnel.
- B. Ensure roof drains, couplings, piping, supports, fixtures, pipe hangers, fasteners, fittings, etc. are installed in compliance with the referenced plumbing code, and installed in accordance with the component manufacturer's published guidelines and instructions, and referenced standards.
- C. Field test completed storm drain systems as required by the referenced plumbing code.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging.
- B. Storage: Store materials to prevent damage and not encumber Owner's operations.

- C. Handling: Handle materials in such a manner as to prevent damage and contamination.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1. Install roof drains and associated plumbing during periods of no precipitation to prevent water from entering the building.
2. Prevent damage to the building and contents during roof drain and associated plumbing installations.
3. Comply with applicable rules and regulations of Authorities Having Jurisdiction pertaining to storm sewage systems.
4. Flood test roof drain systems to verify functional operation prior to roof replacement operations and report deficiencies to Engineer and Owner.

B. Protection:

1. Ensure roof drainage systems remain in service and restore to operational before leaving the site.
2. Protect building interior and exterior surfaces during construction.

PART 2 PRODUCTS

2.1 ROOF DRAINS

- A. Retrofit Roof Drain: Prefabricated aluminum drain insert composed of 11 gauge spun aluminum drain body, 17.5 inch diameter aluminum flange, cast aluminum clamping ring, cast aluminum strainer, built-in vortex breaker providing more consistent flow, watertight U-Flow seal and stem length and diameter as required by field conditions. Drain approved by roof system manufacturer. Field verify drain diameter and required stem length prior to ordering drains.

PART 3 EXECUTION

3.1 INSPECTION

- A. Conduct a pre-job conference including the Engineer, Contractor, and the Owner's representative prior to the installation of roof drains and associated piping and plumbing fixtures.
- B. Verify that conditions are acceptable to begin the installation.
- C. Inspect daily the plumbing installation to ensure conditions remain satisfactory.

3.2 PREPARATION

- A. Inspect building components and conditions before proceeding with plumbing installation.
- B. Where decking is cut for drains, inspect building interior for utilities, structural members and occupancy conditions to ensure conditions are satisfactory to proceed.
- C. Where decking is cut to install roof drains, provide minimum steel angle around perimeter of deck opening for additional deck support.

- D. Inspect the piping route and hanger attachment points to ensure conditions are satisfactory to install piping and associated plumbing fixtures for the completed drainage system.
- E. Route piping to maintain working spaces around electrical equipment by NEC.
- F. Do not route piping and fixtures to interfere with the service of in-place equipment and systems.
- G. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner, Engineer, and Authorities Having Jurisdiction.

3.3 DRAIN LEADERS AND ROOF DRAINS

- A. Prior to commencement of work on the project inspect for damage and water flow.
 - 1. Clean drains of accumulated debris and loose gravel.
 - 2. Clean drain bowl and drain outlet of bitumen build-up to bare metal by hand scraping.
 - 3. Power vacuum debris, loose gravel, and bitumen scraping down to the first elbow in the drain line.
 - 4. After cleaning bitumen from the drain bowl, inspect the bowl carefully for cracks, and the drainpipe connection for possible deterioration.
 - 5. Flood test to determine that there are no plumbing leaks unrelated to the existing roof system and to verify proper function and flow.
 - 6. Complete inspection and testing prior to roofing tear-off. If deficiencies or damages are observed, record the deficiency on a Roof Plan and forward to the Engineer. The Engineer will notify the Owner accordingly. Allow 48 hours after notification for corrective work by the Owner.
 - 7. If no deficiencies or damages are reported to the Owner prior to commencement of work, assume responsibility for the condition and operation of the leaders and drains including the connection between the roof drain and associated plumbing/leaders.
- B. Install temporary drain plugs during roofing activities to prevent foreign materials from entering drainage system. Remove drain plugs at the end of each workday to maintain drains in operational condition.
- C. Reinstall clamping rings, bolts and strainer domes at the end of each working day.
- D. Repair drain piping clogged by construction debris at no cost to the Owner.
- E. Repair leaks associated with damage, following successful flood testing, to the roof drain connection to associated plumbing at no cost to the Owner.

3.4 RETROFIT DRAINS

- A. Remove clamping ring and strainer dome.
- B. Examine drain leader to ensure there are not elbows preventing drain insert from being installed. Field verify this condition along with drain diameter prior to ordering drain inserts.
- C. Prepare inside of drain leader in accordance with manufacturer's preparation instructions.

- D. Install drain insert in accordance with manufacturer's installation instructions, secure to roof deck and properly tighten compression seal.
- E. Provide roof drain flashings as specified.
- F. Install and clamping rings and properly tighten bolts/nuts.
- G. Install stainer dome and ensure it remains in place daily.

END OF SECTION

SECTION 23 05 29

ROOFTOP HANGERS AND SUPPORTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Provide portable, non-penetrating, rooftop support system for:
 - a. Piping, Conduits and Cables
 - 2. Provide PVC condensation lines with integral P-trap on HVAC units if not present. Route condensation lines to nearest drainage point (i.e. roof drain, gutter, or scupper) and set on non-penetrating, rooftop support system.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:
 - 1. Section 07 52 16.13 - Torch-Applied Modified Bitumen Roofing

1.3 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.
- B. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics; 2023.
- C. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2025.

1.4 SYSTEM DESCRIPTION

- A. Support piping on roof with an engineered prefabricated system designed for installation without roof penetrations, flashing or damage to the roofing material. System consists of bases, made of high-density polypropylene plastics with UV Protection, a HDG structural steel frame and suitable pipe hangers for the application with electro-plated nuts, threaded rods and washers. Custom designed to fit piping and conduit and the conditions of service.
- B. Provide Seismic and High Wind applications where necessary for categories listed above.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- C. Shop Drawings: Show installation layout, sizes of units, and details of installation.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Specializing in manufacturing pipe support systems, with a minimum of eight years of documented experience.
- B. Installer Qualifications: Approved by manufacturer and with not less than five years of experience in installation of piping support systems.
- C. Pre-Installation Meeting:
 - 1. Attendees: Owner, Engineer, Contractor, Roofing Contractor, Mechanical Contractor, Electrical Contractor.
 - 2. Purpose of meeting is to describe in detail the installation process and to establish agreement, coordination, and responsibilities.
 - 3. Prepare detailed meeting report and distribute copies to the Engineer and attendees.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in manufacturer's original packaging, marked with manufacturer's name, product model names and catalog numbers, identification numbers, and other related information.
- B. Store materials under cover until needed for installation.

1.8 WARRANTY

- A. Warranty: 5-year limited warranty to repair or replace products that are structurally defective in material or workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Whenever a particular make of material, trade name and/or manufacturer's name is specified herein, it is indicative of the minimum standard of quality and performance characteristics required. Follow specific manufacturer's requirements in regard to preparation, application, etc. if differing from the specified requirements.
 - 1. Manufacturers:
 - a. Portable Pipe Hangers (PPH)
 - b. OMG Pipeguard
 - c. nVent Caddy
 - d. Miro Industries
- B. Specifications and Drawings are based on manufacturer's proprietary literature from PPH. Comply with minimum levels of material, color selection, and detailing indicated in Specifications and Drawings required by other manufacturers. Engineer will be sole judge of acceptance of substitutions.

2.2 APPLICATIONS

- A. Support pipes, conduit, cable trays, and ducts minimum of 6 inches above roof surface.
 - 1. Support Spacing: Maximum of 6 feet or as required by manufacturer.
 - 2. For Electrical and Gas Lines 2-1/2 inches in Diameter or Less, up to 10 inches above roof: Portable Pipe Hanger Model number: SS8
 - 3. For Electrical and Gas Lines 3-1/2 inches in Diameter or less, up to 16 inches above roof: Portable Pipe Hanger Model number PP10.
 - 4. For Gas Lines 4 to 6 inches in Diameter, up to 12 inches above roof: Portable Pipe Hanger Model number RB18.
 - 5. For single Electrical and Gas Lines 3 to 8 inches in Diameter: Portable Pipe Hanger Model number PS 1-2.
 - 6. For Multiple Lines: Portable Pipe Hanger Model number PSE custom.
 - 7. Accessories for PSE Custom and Other Applications when required
 - a. On sloped roof surfaces where slope exceeds 1/4 inch per foot: Provide base with swivel for slope adjustment.
 - b. Un-insulated Piping: Roller support or clevis hanger.
 - c. Insulated Piping: Band hanger supported from horizontal channel or clevis hanger with Insulation Protection Shield.
 - d. Conduit: Band hanger supported from horizontal channel.
 - e. Bracing required when using base with swivel, when pipe exceeds 24 inches above roof, or when thermal expansion of pipe is great.
- B. Attachment of Base to Roof Surface when required for Seismic and High Wind Application: No attachment to roof surface.

2.3 MATERIALS

- A. Portable Support System: Engineered, portable system specifically designed for installation without the need for roof penetrations or flashings, and without causing damage to the roofing membrane.
 - 1. Design system using high density / high impact polypropylene bases with carbon black, anti-oxidants for UV protection, and steel framing for support is 1-5/8 inch B22TH or 1-7/8 inch BTS22TH
 - 2. Custom design system to fit piping, conduits, equipment, or walkways for conditions of service and loading.
 - 3. Piping Supports: Provide suitable hangers and supports.
- B. Bases: Injection molded high density/high impact polypropylene with UV-inhibitors and antioxidants, conforming to the following:
 - 1. Moisture Content: Negligible.

2. Shrinkage/Swelling Due to Moisture: Negligible.
3. Density: 55.8 lb/cu ft.
4. Insect Resistance: No known insect damage potential.
5. Chemical Resistance (oil, brake fluid, gasoline, diesel, antifreeze, battery acid, and sulfuric acid) No visual or physical change apparent.
6. Flammability: No ignition after 10 minutes, 25 kW/m, when tested in accordance with ASTM D1929.
7. Sized as required by loading conditions and as indicated on the drawings.
8. Shop fabricated with inserts for square tubing or threaded rods as required.
9. Color: Integral black color as molded.
10. Bases for Mechanical Attachment: Sealant chamber around penetration point, with injection port for sealing after fastening; beveled lip for sealant bead around diameter.
11. Do not use bases containing carbonated plastics, press molded recycled rubber and plastics, steel, stainless steel, or injection molded threaded receivers.

C. Framing:

1. Channel Types: 1-5/8 inch B22TH or 1-7/8 inch BTS22H, as required for loading conditions.
2. Thickness: 12 gauge
3. Form: Roll-formed 3-sided or tubular channel, perforated with 9/16 inch holes at 1-7/8 inch centers on three sides.
4. Material:
 - a. Hot dip galvanized steel in accordance with ASTM A123/A123M after fabrication, free of roughness, whiskers, unsightly spangles, icicles, runs, barbs, sags, droplets, and other surface blemishes.
5. Do not use tubing or tube steel.

D. Pipe Supports and Hangers: Conform to MSS SP-58 and MSS SP-69 and as follows:

1. Fabricate of carbon steel where framing is carbon steel; fabricate of stainless steel where framing is stainless steel; finished same as framing.
2. Sizes 2-1/2 inch and smaller: Single roller supports for piping subject to expansion and contraction; 3-sided channels and pipe clamps.
3. Sizes 3 inch and larger: Rollers, clevis hangers, or band hangers, to allow for expansion and contraction without movement of the bases or framing.

E. Accessories: Clamps, bolts, nuts, washers, and other devices as required.

1. Carbon Steel: Hot dip galvanized in accordance with ASTM A153/A153M.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that roofing system is complete and that roof surfaces are smooth, flat, and ready to receive work of this section.
- B. Verify that roof surface temperature is at minimum 60 degrees F, for proper adhesive performance.

3.2 PREPARATION

- A. Clean surfaces of roof in areas to receive portable support bases.
 - 1. Sweep loose gravel from gravel surfaced roofs.
 - 2. Remove dirt, dust, oils, and other foreign materials.
- B. Use care in handling portable support system components during installation, to avoid damage to roofing, flashing, equipment, or related materials.

3.3 INSTALLATION

- A. Pipe, Cable, and Equipment Support Systems:
 - 1. Locate bases and support framing as indicated on drawings and as specified herein. Provide support of piping, ducts, and conduit, whether or not required devices are shown.
 - 2. The use of wood for supporting piping is not permitted.
 - 3. Provide supports spaced so deflection of piping does not exceed 1/240 of span.
 - 4. Install framing at spacing indicated, but in no case at greater than 10 feet on center.
 - 5. Accurately locate and align bases.
 - a. Consult manufacturer of roofing system as to the type of isolation pads required between the roof and base.
 - b. Set isolation pads in adhesive if required by manufacturer's instructions.
 - c. Place bases on isolation pads.
 - d. Adhere or mechanically attach if required by code.
 - e. Where applicable, replace gravel around bases.
 - 6. Set framing posts into bases and assemble framing structure as indicated.
 - 7. Use galvanized fasteners for galvanized framing and stainless steel fasteners for stainless steel framing.

3.4 FIELD QUALITY CONTROL

- A. Provide a factory-trained representative of the manufacturer to visit the site while the work is in progress to assure that the installation conforms to the design requirements and the manufacturer's installation requirements.

3.5 PROTECTION

- A. Provide protection as required to leave the work area in undamaged condition at the time of completion of work.

3.6 CLEANING

- A. Remove packaging, unused fasteners, adhesive and other installation materials from the project site.
- B. Remove adhesive from exposed surfaces of supports and bases and leave the work in clean condition.

END OF SECTION