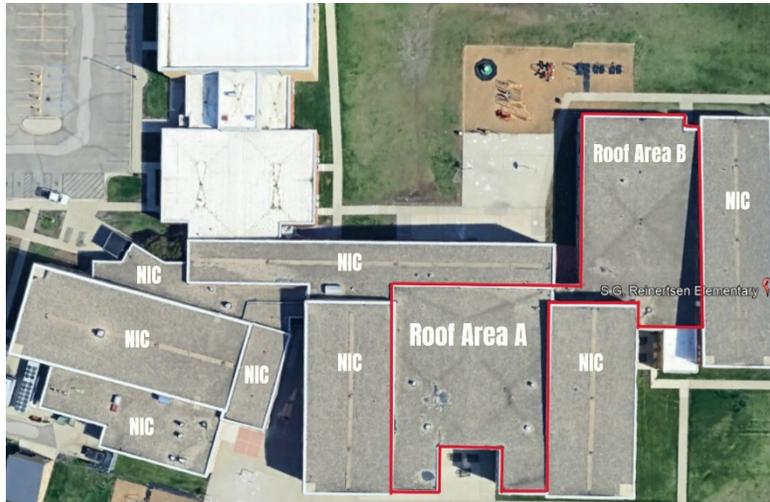


## PROJECT SPECIFICATION MANUAL

# MOORHEAD AREA PUBLIC SCHOOLS

## S.G. Reinertsen Elementary School



## Horizon Middle School



Prepared by WILLIAM JAMES COGAN RRC, RRO, GRP, CSR

## RAM Companies

1680 Industrial Parkway South Brunswick, Ohio 44212

Date: February 12, 2026

OWNERSHIP OF DOCUMENTS  
SECTION 00 01 02

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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These Bidding Documents, and the ideas, drawings and specifications incorporated herein, as an instrument of professional service, are the property of RAM Companies LLC., and are not to be used, in whole or in part, for any other project without the written authorization of RAM Companies LLC.

These Bidding Documents were prepared for Moorhead Area Public Schools by: RAM Companies LLC.



LIST OF DRAWINGS  
SECTION 00 01 15

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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## Instructions to Bidders

**RAM Companies LLC.**

**Moorhead Public Area Schools**

**S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement**

### **Bid Form**

- A. To receive consideration, all bids shall be submitted in strict accordance with the following:
- B. Properly executed bids shall be prepared using the forms provided herein and filled out completely. The contractor shall not change the wording or add wording on the bid form. The contractor provided conditions, limitations or provisions attached to the bid form shall be cause for rejection of the bid. Alterations by erasure or interlineation must be explained or noted in the bid over the signature of the bidder.
- C. Bids shall be addressed to the Owner as indicated "Invitation to Bid" on/or before the day and hour set opening of bids. Bids may be transmitted electronically with hard copies following via selected carriers if requested. The contractor bears sole responsibility for ensuring that their electronic submissions are received by the bid due date and time.

### **Examination of Drawings, Specification, and Site of Work**

- A. Before submitting a bid, each bidder shall carefully examine the drawings, read the specifications and all other proposed contract documents, and visit the site of the work. Each bidder shall fully inform themselves prior to bidding as to all existing conditions and limitations under which the work is to be performed, and they shall include in his bid a sum to cover all costs of all items necessary to perform the work as set forth in the proposed contract documents. No allowance will be made to any bidder because of lack of such examination or knowledge. The submission of a bid will be construed as conclusive evidence that the bidder has made such examinations.
- B. The bidder is solely responsible for determining square footage and quantities of protrusions, drainage components, sheet metals and associated or incidental items required to provide a complete and warrantable project.

### **Code Compliance**

- A. The contractor's bid shall be in compliance with all applicable codes whether or not stated in the contract documents.
- B. Proof of Competency of Bidder
- C. All bidders shall be duly licensed roofing contractors and shall have the manufacturer's approval for installation of the work described in the contract documents. This requirement extends to all subcontractors and others herein as such licensing laws apply.



## Instructions to Bidders

RAM Companies LLC.

Moorhead Public Area Schools

S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

### Subcontractors

- A. The use of subcontractors will not be permitted.



**Instructions to Bidders**

**RAM Companies LLC.**

**Moorhead Public Area Schools**

**S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement**

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**BID FORM – MOORHEAD AREA PUBLIC SCHOOLS ROOF REPLACEMENTS  
S.G REINERTSEN ELEMENTARY AND HORIZON MIDDLE SCHOOL**

To: Moorhead Area Public Schools  
1313 30<sup>th</sup> Ave S,  
Moorhead, MN 56560

FROM: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- A. Pursuant to and in compliance with the invitation to bid and the contract documents for the replacement of the roofing systems on the roof portions as identified on the Contract Drawings for.

Contractor acknowledges the receipt of the following Addenda:

No Addenda At this time.

The undersigned, having become thoroughly familiar with the terms and conditions of the proposed contract documents; and with local conditions affecting the performance and cost of the work at the place where the work is to be completed; and having fully inspected the site in all particulars, hereby proposed and agrees to fully perform the work within the time stated in strict accordance with the proposed contract documents, including furnishing any and all labor and materials, and to do all the Work required to construct and complete said work in accordance with the contract documents, for the following sum of money.

Contractor shall provide pricing for Items B, C, D and E. Failure to do so may lead to bid to be considered non-responsive and removed from consideration.

**B. Base Bid**

1. Remove and store the existing ballast from the existing ballasted EPDM roofing system
2. Remove and dispose of the EPDM roofing material
3. Inspect the existing insulation system and replace any areas that are damaged or wet
4. Provide and install new 5/8" Dexcel cement cover board
5. Provide and install a new ballasted 80 mil PVC roofing system including
6. Redistribute the store roofing ballast across new roof area
7. Provide and install new sheet metal coping and flashings
8. All other work listed on the contract documents

Provide all labor, materials, service, equipment, including permitting fees necessary for completion of the Work shown on the Contract Drawings and Contract Documents.

**S.G Reinertsen Elementary School:**

\_\_\_\_\_ Dollars  
(written)  
\$ \_\_\_\_\_  
(numbers)

**Horizon Middle School East:**

\_\_\_\_\_ Dollars  
(written)  
\$ \_\_\_\_\_

**BID FORM – MOORHEAD AREA PUBLIC SCHOOLS ROOF REPLACEMENTS**  
**S.G REINERTSEN ELEMENTARY AND HORIZON MIDDLE SCHOOL**  
 (numbers)

D. Unit Pricing

For the specific items noted in Section 01 2200 “Unit Pricing” the following unit prices shall prevail. The unit prices shall include all labor, overhead, profit, materials, equipment, etc. Only a single unit price shall be given, and it shall apply for either more or less than shown and called for in the Contract Documents.

| <u>Description</u>   | <u>Unit Price</u> |
|--|-------------------|
| 1. Prepare and prime paint steel deck repair per square foot | \$ _____          |
| 2. Overlay steel deck per square foot                        | \$ _____          |
| 3. Replace deteriorated steel decking per square foot        | \$ _____          |
| 4. Replace deteriorated wood nailers per board foot          | \$ _____          |
| 5. Install new PVC walkways per linear foot                  | \$ _____          |
| 6. Remove and replace polyisocyanurate insulation            | \$ _____          |
| 6. Replace damaged drain rings and strainers (each)          | \$ _____          |
| 7. Replace cracked/broken drain assemblies and tie in (each) | \$ _____          |
| 8. Install new PVC Coated aluminum drain inserts             | \$ _____          |

F. Additional Information

1. Contractor understands that the Owner reserves the right to reject this bid, but that this bid shall remain open and not be withdrawn for a period of ninety (90) days from the date prescribed for its opening.
2. If written notice of the acceptance of this bid is mailed or delivered to the undersigned within ninety (90) days after the date set for the opening of this bid, or at any other time thereafter before it is withdrawn, the undersigned will execute and deliver the contract documents to the owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner any required documents and proof of insurance coverage within fifteen days after personal delivery or after deposit in the mail of the notification of acceptance of this bid.
3. Notice of acceptance or requests for additional information may be addressed to the undersigned at the address set forth on the following page.
4. The names of all people interested in the foregoing bid are the principals:

BID FORM – MOORHEAD AREA PUBLIC SCHOOLS ROOF REPLACEMENTS  
S.G REINERTSEN ELEMENTARY AND HORIZON MIDDLE SCHOOL

IMPORTANT NOTICE: If the bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names of President and Secretary; If a partnership, give name of firm and names of all individual copartners composing the firm; if bidder or other interested person is an individual, give first and last names in full.

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BUSINESS ADDRESS:

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TELEPHONE NUMBER: (        ) \_\_\_\_\_

Contractor will be legally licensed to perform roof contracting and associated work in the state where this project is located. The current license number is \_\_\_\_\_ attached as an integral part if this Bid Form is a copy of the most current legal contractor's license.

PLEASE SIGN HERE:

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SIGNATURE OF BIDDER

DATE OF PROPOSAL:

---

DATE

GENERAL CONDITIONS  
SECTION 00 0610

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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SECTION 00 0610 – GENERAL CONDITIONS

PART 1 - GENERAL

1.1 INSURANCE REQUIREMENTS - RAM Standard change limits if required by owner

- A. Commercial General Liability, including premises/operations, broad form property damage, personal/advertising injury, blanket contractual, fire and explosion legal liability, explosion/collapse/underground hazard coverage and products completed operations coverage (CGL), in an amount not less than \$3,000,000 per occurrence and \$5,000,000 project specific aggregate. This CGL policy must be maintained for 1 year following expiration or termination of this Agreement and may not include any exclusions or endorsements that limit coverage for claims from incidents that are also covered by workers' compensation or employer liability insurance.
- B. Automotive Liability Coverage for all owned, hired and non-owned vehicles with a combined single limit of not less than \$1,000,000.
- C. Workers' Compensation coverage (including an alternate employee endorsement) for its employees or contractors with statutory limits and Employer's Liability coverage in an amount not less than \$500,000. If any state workers' compensation requires an express waiver by Contractor for Owner to obtain indemnity from Contractor under the indemnification provision contained in this Agreement, this provision will be deemed such a waiver.
- D. Environmental Impairment or Pollution Liability Insurance policy, including clean-up costs, with limits not less than \$2,000,000 per occurrence and \$3,000,000 in the aggregate.
- E. RAM Companies LLC and its subsidiaries must be listed as additional insured for both ongoing and completed operations.

1.2 CONTRACTORS RESPONSIBILITY FOR PROPERTY DAMAGES

- A. Contractor shall bear the burden of all costs to repair, replace or otherwise make good all property damages for which they are at fault.
- B. The contractor shall bear the burden of all financial losses incurred by the property owner, management or others for loss of time, information, inability to process or continue business or any other situation caused by damages for which the contractor is at fault.



GENERAL CONDITIONS  
SECTION 00 0610

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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- C. Contractor shall be responsible for identifying the locations of conduits, electric lines, fiber optic cables or other any other type items located near the underside of the roof deck that may be damaged due to roof removal, strikes by roofing fasteners or other work and provide for protection against damage.
- D. Contractor shall have on notice by pre-arranged agreement specific trade contractors for prompt response to reasonably foreseen possible damages.

1.3 SUBCONTRACTORS

- A. Subcontractors are not allowed to perform the installation of roofing work. All roofing workers must be the prime contractor's employees.
- B. Specialty sub-contractors are allowed for specialty roofing trades such as tile, slate, asbestos removal, etc. subject to the conditions listed below.
- C. A list of all subcontractors to used on the Project shall be supplied to the Owner and Consultant for approval before the start of work.
- D. All subcontractors shall be required to attend the Preconstruction Meeting and all Project meetings at which their work is applicable and/or involved.
- E. Subcontractors shall be acquainted with all site-specific safety and Code of Conduct rule of regulatory agencies, jurisdictions and Owner's requirements and held to the same standards as the prime contractor.

1.4 SHARING OF REPORTS AND INFORMATION

- A. Upon written request the Contractor shall provide to the Consultant all requested information including pre-construction, interim construction and post-construction reports and other information prepared and provided to the Contractor by product manufacturers and/or their representatives or contractors, regulatory agencies and their inspectors, independent inspectors, owner's representatives and any other parties concerned with the Project.

1.5 AGREEMENT TO ALL TERMS AND CONDITIONS OF THE CONTRACT DOCUMENTS

- A. All Bidding Parties recognize, accept and agree that by submitting a bid on this Project they shall be bound by all the terms and conditions set forth in the Bidding and Contract Documents as prepared by RAM Companies, LLC and its subsidiaries.



GENERAL CONDITIONS  
SECTION 00 0610

RAM Companies LLC.  
Moorhead Public Area Schools  
S. G. Reinertsen Elementary and Horizon Middle School Roof Replacement  
END OF SECTION 00 0610

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CONTRACTORS PAYMENT DEBITS AND CLAIMS  
SECTION 00 0630

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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SECTION 00 0630 – CONTRACTORS PAYMENT DEBITS AND CLAIMS

GENERAL

- 1.1 The Form to be used is to be Contactor's Affidavit of Payment of Debts and Claims, AIA Document G706-1994, issued by the American Institute of Architects.
- A. The copy of the Form of Agreement is incorporated in these General Conditions by reference and is made a part hereof to the same extent as though fully set forth herein.

END OF SECTION 00 0630



CONTRACTORS PAYMENT DEBITS AND CLAIMS  
SECTION 00 0630

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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CONTRACTORS AFFIDAVIT OF RELEASE OF LIENS  
SECTION 00 0640

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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SECTION 00 0640 – CONTRACTOR’S AFFIDAVIT OF RELEASE OF LIENS

PART 1 - GENERAL

- 1.1 The Form to be used for “Contractor’s Affidavit of Release of Liens”, AIA Document G706A-1994, issued by the American Institute of Architects.
  - A. The copy of the Form of Agreement is incorporated in these General Conditions by reference and is made a part hereof to the same extent as though fully set forth herein.

END OF SECTION 00 0640



CONTRACTORS AFFIDAVIT OF RELEASE OF LIENS  
SECTION 00 0640

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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LIQUIDATED DAMAGES  
SECTION 00 0660

RAM Companies LLC  
Moorhead Area Public Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacements

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SECTION 00 0660 – LIQUIDATED DAMAGES

PART 1 - CONSTRUCTION

- 1.1 Contractor is required to bring all work included in the drawings and specifications to completion at both S.G. Reinertsen Elementary and Horizon Middle School to the satisfaction of the building owner by August 31, 2027.
- 1.2 In the event of a delay to the completion date beyond the stated above, Contractor shall pay Liquidated Damages to the Consultant, RAM Companies LLC, at a rate of \$ 1,500.00 per day of delay, subject to a maximum of ten percent (10%) of the Initial Contract Price.
- 1.3 Such Liquidated Damages shall be deemed to be a genuine pre-estimate of the foreseeable damages incurred by the Consultant due to delay and shall be Consultant's sole recourse for late performance by Contractor under the Contract.
  - A. For the purpose of calculating such Liquidated Damages, the Contract Schedule shall be extended by any additional time or delays outside the sole control of Contractor or delay not caused by Contractor, including but not limited to suspension by Consultant or Contractor in accordance with the Contract, weather downtime, delay due to Force Majeure, and any time spent or lost on additional work or standby.

PART 2 – ADJUSTING AND CLEANING

- 1.1 Deficiencies noted during the Roofing Materials Manufacturer's and/or the Consultant's final inspection must be repaired and corrected by the Contractor within five (5) working days.
  - A. Contractor shall provide to the Consultant photographs in a digital format documenting the completed repairs and corrections within two (2) days of the completion of completing the repairs and corrections.
  - B. Should the Consultant deem the deficiencies serious and/or not sufficiently remedied requiring an on-site re-inspection by the Consultant's Representative, Contractor shall pay Liquidated Damages to the Consultant, RAM Companies LLC at a rate of \$ 5,000.00 per re-inspection.
  - C. Requirement of re-inspection of deficient work shall be at the sole discretion of Consultant.

END OF SECTION 00 0660



EXISTING CONDITION INFORMATION  
SECTION 003119

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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1.1 EXISTING CONDITION INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information but are not a warranty of existing conditions. This Document and the attachments are not part of the Contract Documents.
- B. The following information represents RAM's analysis of the roof cores taken during the preconstruction process, but the results are not guaranteed at other locations on the roof.
  - 1. System Make Up
    - a. Ballasted EPDM Roofing System
    - b. Insulation system
    - c. Steel deck
- C. No testing for the presence of asbestos fibers was performed. If suspect materials are identified during construction, notify Owner immediately.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 003119



EXISTING CONDITION INFORMATION  
SECTION 003119

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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SUMMARY  
SECTION 01 1000

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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SECTION 01 1000 - SUMMARY

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project Information
2. Work Covered by Contract Documents
3. Work by Owner
4. Access to Site
5. Coordination with Occupants
6. Work Restrictions
7. Specification and Drawing Conventions

PROJECT INFORMATION

A. Project Identification: Roof Replacements

1. Project Location: S.G. Reinertsen Elementary School- 1201 40<sup>th</sup> Ave S, Moorhead, MN
2. Project Location: Horizon Middle School- 40<sup>th</sup> S, Moorhead, MN

B. Owner: Moorhead Area Public Schools

1. Owner's Representative: RAM Companies LLC.

C. Consultant: RAM Companies LLC prepared portions the Contract Documents:

1. Project Consultant: RAM Companies LLC, 1680 Industrial Parkway, Brunswick, Ohio 44212

WORK COVERED BY CONTRACT DOCUMENTS

A. Work of Project is defined by the Contract Documents and consists of the following:

1. Work includes removal and storage of the existing roof ballast from the existing ballasted EPDM roofing system.
2. Remove and dispose of the existing EPDM membrane



SUMMARY  
SECTION 01 1000

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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3. Inspect the existing Insulation system and replace all wet and damaged insulation with like new product.
4. Remove and replace deteriorated wood components scheduled to remain. Provide and install new wood nailers or blocking as shown on Contract Drawings and identified in Section 06 1053 "Miscellaneous Rough Carpentry." Replacement Work shall be performed on a Unit Price Basis.
5. Replace any deteriorated metal decking discovered during construction. Work shall be performed on a Unit Price Basis.
6. Provide and install NEW 80 Mil PVC Ballasted roofing system per the specifications and drawings.
7. Provide and install new sheet metal flashings, and counter flashings as shown on Contract Drawings and identified in Section 07 6200 "Sheet Metal Flashing and Trim."
8. Provide Owner with Roofing Manufacturer's twenty (30) year system warranty and Contractor's five (5) year warranty.

Type of Contract:

Project will be constructed under a single prime contract.

1.5 WORK BY OWNER

General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

Preceding Work: None

- C. Concurrent Work: None
- D. Subsequent Work: None

1.6 ACCESS TO SITE

General: Contractor shall have limited use of Project site for construction operations as and as indicated by requirements of this Section.

Use of Site: Limit use of Project site to work in areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.



SUMMARY  
SECTION 01 1000

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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Limits: Confine construction operations to subject roof area and ground level around building as identified by Owner during pre-bid meeting.

Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

- a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
- b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

#### 1.7 COORDINATION WITH OCCUPANTS

Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than **72** hours in advance of activities that will affect Owner's operations.
3. Provide portable toilets in sufficient number to adequately accommodate contractor's employees, subcontractors, suppliers and all other visitors to the work site. A minimum of 1 toilet per 10 employees on site is required. Contractors are advised to confirm local OSHA requirements.

#### 1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  1. Comply with limitations on the use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to the following times shown below unless otherwise indicated.
  1. Weekday Hours: Shall be defined and made a part of the contract at the Pre-Bid Meeting
  2. Hours for Utility Shutdowns: As agreed to by Owner with specified advanced notice



SUMMARY  
SECTION 01 1000

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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3. Hours for Core Drilling: As agreed to by Owner with specified advanced notice

Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Consultant and Owner not less than 3 days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Consultant and Owner not less than 3 days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

Nonsmoking Building: Smoking is not permitted within the building or within 30 feet of entrances, operable windows, or outdoor-air intakes.

Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

- G. Employee Screening: Contractor shall maintain a list of onsite personnel for Owner. Contractor personnel will need to check in at security each time they enter the building.
  1. Maintain list of approved screened personnel with Owner's representative.

## 1.9 SPECIFICATION AND DRAWING CONVENTIONS

Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.



SUMMARY  
SECTION 01 1000

RAM Companies LLC.  
Moorhead Public Area Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacement

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Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections or in some cases specifically on the Drawings.

PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 1000

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UNIT PRICES  
SECTION 01 2200

RAM Companies LLC  
Moorhead Area Public Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacements

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SECTION 01 2200 - UNIT PRICES

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.

DEFINITIONS

Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES –

- A. Unit Price 1: Clean and prime paint metal deck
  - 1. Description: Areas of surface corrosion of structural metal deck shall be repaired as identified per Section 05 3100 "Steel Decking".
  - 2. Unit of Measurement: Square feet of repair area

Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.



UNIT PRICES  
SECTION 01 2200

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- B. Unit Price No. 2: Overlay isolated areas of deteriorated (surface corrosion) metal decking
1. Description: Clean and prime paint isolated areas of deteriorated metal decking and install metal plating as identified per Section 05 3100 "Steel Decking".
  2. Unit of Measurement: Square feet of repair area

Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.

- C. Unit Price No. 3: Remove and replace deteriorated metal decking
1. Description: Remove and replace areas of deteriorated metal decking as identified per Section 05 3100 "Steel Decking".
  2. Unit of Measurement: Square feet of repair area
  3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.

- D. Unit Price No. 4: Replace deteriorated wood nailers
1. Description: Remove and replace deteriorated wood nailers scheduled to remain as specified in Section 06 1053 "Miscellaneous Rough Carpentry".
  2. Unit of Measurement: Board feet of replaced boards
  3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.

- E. Unit Price No. 5: Install walkways
1. Description: Install manufacturer's approved walkways as identified in Section 07 5419 "Polyvinyl Chloride (PVC) Roofing."
  2. Unit of Measurement: Linear feet of walkway
  3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.

- F. Unit Price No. 6: Remove and replace wet or damaged Polyisocyanurate insulation
1. Description: Remove and replace wet or damaged insulation scheduled to remain as identified in Section 07 5419 "Polyvinyl Chloride (PVC) Roofing."
  2. Unit of Measurement: Square feet of Polyisocyanurate insulation
  3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.



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Unit Price No. 7: Replace cracked or broken cast iron drain clamping rings and strainer domes

1. Description: Replace all cracked, broken or otherwise damaged drain clamping rings with new cast iron drain clamping rings of like type and size as specified in Section 22 1423 "Storm Drain Piping Specialties." Include new strainer dome with clamping ring.
2. Unit of Measurement: Each replaced
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.

H. Unit Price No. 8: Replace cracked or broken interior drains with new PVC coated aluminum drain inserts

1. Description: Replace all cracked, broken or otherwise damaged cast iron drains with new cast iron drains of like type and size as specified in Section 22 1423 "Storm Drain Piping Specialties."
2. Unit of Measurement: Each replaced
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 "Allowances" and as noted in Bid Form.

END OF SECTION 01 2200



SUBSTITUTION PROCEDURES  
SECTION 01 2500

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SECTION 01 2500 - SUBSTITUTION PROCEDURES

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:

Section 01 2100 "Allowances" for products selected under an allowance.

- 2. Section 01 2300 "Alternates" for products selected under an alternate.

1.3 DEFINITIONS

Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

- 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
- 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

Substitution Request Form: Use Contractor letterhead with the specified supporting documentation and signature of authorized representative of Contractor.

- 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

Statement indicating why specified products, fabrication or installation cannot be provided, if applicable.



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- b. Coordination information, including a list of changes or revisions needed to other parts of the Work.
  - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of the applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effects, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - h. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - i. Cost information, including a proposal of change, if any, in the Contract Sum.
  - j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Consultant's Action: If necessary, Consultant will request additional information or documentation for evaluation within three (3) working days of receipt of a request for substitution. Consultant will notify Contractor of acceptance or rejection of proposed substitution within five (5) days of receipt of request or five (5) working days of receipt of additional information or documentation, whichever is later.

Forms of Acceptance: Change Order or Consultant's Supplemental Instructions for minor changes in the Work.

- b. Use product specified if Consultant does not issue a decision on use of a proposed substitution within time allocated.



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1.5      QUALITY ASSURANCE

- A.      Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers (if required).

1.6      PROCEDURES

- A.      Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1      SUBSTITUTIONS

Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than five (5) working days prior to time required for preparation and review of related submittals.

- 1.      Conditions: Consultant will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Consultant will return requests without action, except to record noncompliance with these requirements:

Requested substitution is consistent with the Contract Documents and will produce indicated results.

- b.      Substitution request is fully documented and properly submitted.
- c.      Requested substitution will not adversely affect Contractor's construction schedule.
- d.      Requested substitution has received necessary approvals of authorities having jurisdiction.
- e.      Requested substitution is compatible with other portions of the Work.
- f.      Requested substitution has been coordinated with other portions of the Work.
- g.      Requested substitution provides specified warranty.
- h.      If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2500



SUBSTITUTION PROCEDURES  
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PAYMENT PROCEDURES  
SECTION 01 2900

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SECTION 01 2900 – PAYMENT PROCEDURES

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:

Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.

- 2. Section 012200 "Unit Prices" for administrative requirements governing the use of unit prices.
- 3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 APPLICATIONS FOR PAYMENT

Each Application for Payment shall be consistent with Owner/Contractor Agreements, Project Documents and any previous applications and payments, as certified by Consultant and Owner.

Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

- C. Payment Application Times: Submit Application for Payment per time period/construction progress terms indicated in the Owner/Contractor Agreement.

Application for Payment Forms: Use AIA Document G70703 as form for Applications for Payment.

- E. Application Preparation: Complete every entry on form.



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1. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  2. Include amounts of Change Orders issued before last day of construction period covered by application.
  3. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

Transmittal: Submit signed and notarized digital copies of each Application for Payment. Include waivers of lien and similar attachments if required.

1. Transmit each Application for Payment and other required documents in digital format for approval.

Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.



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4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

Evidence of completion of Project closeout requirements including Warranties.

2. Certification of completion of final punch list items.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. Evidence that claims have been settled.
5. Final liquidated damages settlement statement.
6. Proof that taxes, fees, and similar obligations are paid.
7. Waivers and releases.

#### 1.4 PAYMENTS TO CONTRACTOR

- A. Payment Terms: Owners payments to shall be rendered to Contractor within sixty (60) days of posting of Contractor's Application for Payment into Ariba software.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2900



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SUBMITTAL PROCEDURES  
SECTION 01 3300

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SECTION 01 3300 - SUBMITTAL PROCEDURES

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

Action Submittals: Written and graphic information and physical samples that require Consultant's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

- B. Informational Submittals: Written and graphic information and physical samples that do not require Consultant's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users can access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

Submittal Schedule: Submit all product submittals arranged in chronological order by dates required by construction schedule. Include additional time required for making corrections or revisions to submittals noted by consultant and additional time for handling and reviewing submittals required by those corrections.

- 1. Coordinate submittals with list of subcontracts (if applicable), the schedule of values, and Contractor's construction schedule.



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Initial Submittal: Submit prior to pre-construction conference. Include all submittals required to complete all roof replacement activities. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
  - a. Submit a revised submittal schedule to reflect changes in status and timing for submittals.
4. Format: Consultant will accept PDF files for submittal documentation. Include with each submittal package a "Letter of Transmittal" listing all products included in submission.

PDF Files: Provide one (1) filed copy of each product data sheet for all products listed in this specification. File name shall include the product name. To reduce file sizes, product data sheets should not be scanned from paper copies.

#### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Submit all action and informational submittals for all the products required to complete all roof replacement activities including but not limited to insulations, cover boards, fasteners, adhesives, roofing components, and miscellaneous items.

Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

- a. Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Consultant's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow seven (7) business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Consultant will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow three (3) days for review of each resubmittal.



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Distribution: Consultant shall furnish electronic copies of final submittals to Contractor, Owner, and others as necessary for performance of construction activities.

- D. Use for Construction: Contractor shall always retain complete copies of submittals on Project site. Use only final action submittals that are marked with "Reviewed" or "Reviewed as Noted" notations from Consultant's stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

Electronic Action Submittals; Submit Action Submittals electronically via email as PDF files.

- a. The consultant will return the annotated file. Annotate and retain one copy of file as an electronic Project record document file.

Certificates and Certifications Submittals: Provide statements that include signature of entity responsible for preparing certifications. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

Provide a letter from the manufacturer of the submitted roofing system stating that Contractor has been an approved applicator of their system for no less than three (3) years.

- b. Provide a letter on Contractor's letterhead with an approved signature stating that Contractor shall perform all Work per the project specification requirements, manufacturer's requirements, and applicable codes whether stated in the Contract Documents or not.
- c. Provide a Certificate of Insurance with Contractor's insurance amounts, listing Owner as Certificate Holder, and Owner and Consultant as additional insureds.

Product Data:

1. Mark each copy of each submittal to show which products and options are applicable.
2. Include the following information, as applicable:
  - a. Manufacturer's product catalog cuts for all products to be used during construction.
  - b. Manufacturer's product specifications
  - c. Standard color charts (if requested)
  - d. Statement of compliance with specified referenced standards
  - e. Testing by recognized testing agency



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f. Application of testing agency labels and seals

Submit Product Data in the format discussed in this section.

Shop Drawings: Provide Project-specific drawings including all information noted on the Contract Drawings. Project-specific Shop Drawings are required to be submitted for all tapered insulation layouts as prepared by the tapered insulation system supplier or manufacturer. Project-specific Shop Drawings shall be provided for any and all details which vary from the Consultant-prepared Contract Drawings. Contractor shall provide Shop Drawings in one of the following formats:

1. Consultant Provided Contract Drawings: Contractor may submit construction details for approval (without alteration) from the Contract Documents. Contractor shall provide a letter on Contractor's letterhead stating that Contractor shall utilize construction details from Contract Documents for installation of roofing components.
2. Contractor Generated Drawings: Contractor may submit for approval new AutoCAD generated construction details for approved. Contractor generated drawings shall include at a minimum:

Callout for each component on the drawing with same level of information as comparable drawing in Contract Documents

- b. Dimensions as required to match information on Contract Drawings
- c. Relationship and attachment to adjoining construction clearly indicated
- d. Contractor's Company Logo or approved signature of Contractor
- e. Seal and signature of professional engineer (if specified)

Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm)

Samples: Submit Samples as noted in each Specification Section for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Disposition: Samples shall remain the possession of the Owner or Consultant.

Contractor's Construction Schedule: Comply with requirements specified in Section 01 3200 "Construction Progress Documentation."

- G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 2900 "Payment Procedures."
- H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 7700 "Closeout Procedures."



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- I. **The awarded contractor shall submit to RAM Companies LLC a manufacturer's Shipping Acknowledgement stating the shipping date of the materials for this Project with two (2) weeks of being notified of award via email, phone call or other means.**
  1. The Manufacturer's Shipping Document shall define the order by category and quantities, listing shipping dates for each.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 7700 "Closeout Procedures."

3.2 CONSULTANTS' ACTION

Action Submittals: Consultant will review each submittal, make marks to indicate corrections or revisions required, and return it. The consultant will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:

1. "Reviewed": No Contractor action required.
2. "Reviewed as Noted": No Contractor action required.
3. "Information Only": No Contractor action required.
4. "Revise & Resubmit": Contractor shall provide additional submittal information for review.
5. "Rejected": Contractor shall provide additional submittal information for review.

END OF SECTION 01 3300



SUBMITTAL PROCEDURES

SECTION 01 3300

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CLOSEOUT PROCEDURES  
SECTION 01 7700

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SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract close-out, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.

1.3 CLOSEOUT SUBMITTALS

Certificates of Release: From authorities having jurisdiction.

- B. Certificate of Insurance: For continuing coverage.
- C. Project Warranties

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Submittals Prior to Substantial Completion: Complete the following a minimum of ten (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at the time of request.
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.



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2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number where applicable.

Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner's signature for receipt of submittals.

5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- B. Procedures Prior to Substantial Completion: Complete the following a minimum of ten (10) days prior to requesting inspection for determining date of Substantial Completion. The list of items below that are incomplete at time of request.
1. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 7900 "Demonstration and Training."
  2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  3. Complete final cleaning requirements, including touchup painting.
  4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

#### 1.6 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

Inspections: Manufacturer and Consultant shall complete separate punch list/final inspections.



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1. Manufacturer Punchlist/Final Inspections: Contractor shall contact all manufacturers providing warranties to complete a punch list/final inspection within three (3) days of completion of Work.
  - a.) The contractor shall complete and document the completion of all manufacturer punch list items within five (5) days of notification by manufacturer. The contractor shall create written and photographic documentation of the completed punch list items.
  - b.) The contractor shall provide the manufacturer punch lists along with documentation of completion to RAM Companies LLC before RAM Companies LLC's final Site Visit/Inspection.
  - c.) Should defects be discovered during RAM Companies LLC's final inspection, RAM Companies LLC shall provide a punch list to the contractor. The contractor shall remedy RAM Companies LLC's punch list defects within five (5) days of notification by RAM Companies LLC's. RAM Companies LLC's may require reinspection in the case of discovery of serious defects.
2. Consultant Punch List/Final Inspection: The contractor shall notify RAM Companies LLC of the completion of all manufacturer punch list items and provide documentation of completion within three (3) days of completion.
  - a.) Should defects be discovered during RAM Companies LLC's final inspection RAM Companies LLC shall provide a punch list to the contractor. The contractor shall remedy RAM Companies LLC's punch list defects within five (5) days of notification by RAM Companies LLC. RAM Companies LLC may require reinspection in the case of discovery of serious defects.
  - b.) The contractor shall be obligated to submit payment to RAM Companies LLC for all costs incurred to complete all required inspections.

1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties to the Owner and to RAM Companies LLC for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  1. Printed Warranties: Provide two (2) copies of all warranties to the owner and consultant.
  2. Warranty Electronic File: Scan warranties and assemble complete warranty submittal package into a single indexed electronic PDF file. Provide to the owner and consultant.



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- C. Provide additional copies of each warranty to include in operation and maintenance manuals upon Owner's request.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform 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: Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with the manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to buildings.
    - f. 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.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.



CLOSEOUT PROCEDURES  
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- i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - j. Remove labels that are not permanent.
  - k. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
- 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION 01 7700



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SELECTIVE DEMOLITION  
SECTION 02 4119

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SECTION 02 4119 - SELECTIVE DEMOLITION

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Removal and disposal of existing roofing components
  - a. Remove ballasted EPDM roofing system per Drawings and Specifications

B. Related Requirements:

1. Section 01 1000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements

1.3 DEFINITIONS

Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

- B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  1. Carefully salvage in a manner to prevent damage and promptly return to Owner.



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1.5 PREINSTALLATION MEETINGS

Pre-demolition Conference: Pre-construction meeting as noted in Sections 07 5419

INFORMATIONAL SUBMITTALS

Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work outlining roof area where construction shall begin and phasing through end of construction. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

1.7 FIELD CONDITIONS

Owner will occupy the building below selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

- C. Notify Consultant of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

Hazardous Materials:

1. Testing for the presence of asbestos was not conducted at this facility.
  2. If suspected hazardous materials are encountered, do not disturb; immediately notify Consultant and Owner. Removal of hazardous materials shall be performed under a separate contract with Owner.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection facilities in service during selective demolition operations.



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PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Consultant.

UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  - 1. Comply with requirements for existing services/systems interruptions specified in Section 01 1000 "Summary."

Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

- 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
- 2. Arrange to shut off indicated utilities with utility companies.



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PREPARATION

Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Contractor access to the Work area shall be by OSHA approved exterior access.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated on Contract Drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically from areas farthest to closest to the ground level staging access point, whenever possible.
2. Do not use cutting torches to complete any Work.
3. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site and immediately notify Owner.
4. Locate demolition equipment and remove debris and materials so as not to impose excessive loads on roof deck.
5. Properly dispose of demolished items and materials off the roofs each day.

Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Consultant, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

1. Existing insulation scheduled to remain shall be protected by a minimum of 1-inch insulation and 3/4-inch plywood. Plywood and insulation shall be sufficiently ballasted to prevent blow off. Contractor personnel shall travel to and from ground level staging access points on walkways whenever possible.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

Roofing: Remove no more existing roofing than can be covered in one day by new roofing materials so that building interior remains watertight and weathertight. See Section 07 5419 "Polyvinyl Chloride (PVC) Roofing" for new roofing requirements.

1. Remove existing cant strips at protrusions as required to install PVC membrane base flashing securement in accordance with manufacturer specifications per Section 07 5419 "Polyvinyl Chloride (PVC) Roofing" as shown on the Contract Documents
2. Remove existing roofing and wet or damaged roof insulation at identified wet areas down to the existing steel decking



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3. Remove existing base and perimeter flashing down the vertical surfaces
  4. Remove existing metal copings, penetration flashings, and perimeter flashings down to the existing vertical substrates as required to install new components
  5. Clean roof deck off all trash and debris including all materials in steel deck metal flutes
- B. Remove all existing loose gravel surfacing. The roof surface must be clear of all gravel and debris.

DISPOSAL OF DEMOLISHED MATERIALS

General: Except for items or materials indicated to be reused or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by means that prevents staining of the building exterior or parking areas, and prevents debris from blowing across the property.

Burning: Do not burn demolished materials.

Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 4119



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STEEL DECKING  
SECTION 05 3100

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SECTION 05 3100 - STEEL DECKING

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof deck

B. Related Requirements:

Section 07 5419 "Polyvinyl Chloride (PVC) Roofing" for installation of new insulation and membrane.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings:

1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

1.4 INFORMATIONAL SUBMITTALS

Product Certificates: For each product identified.

QUALITY ASSURANCE

FM Global Listing: Provide steel roof deck evaluated by FM Global and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.



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Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

PART 2 - PRODUCTS

PERFORMANCE REQUIREMENTS

- A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings from an applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 ROOF DECK

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ASC Profiles, Inc.; a Blue Scope Steel company
2. Canam United States; Canam Group Inc.
3. Cordeck
4. Nucor Corp.; Vulcraft Group
5. Roof Deck, Inc.
6. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation

- B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with the Steel Deck Institute "Manual of Construction with Steel Deck," Third Edition, MOC3-2016, and with the following:

Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 33 (230) minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

- a. Color: Manufacturer's standard
- b. Provide decking products compliance with notes and load tables shown in the Steel Deck Institute "Manual of Construction with Steel Deck," Third Edition, MOC3-2016.
2. Thickness: match existing
3. Type: match existing



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ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Mechanical Fasteners: Stainless steel, self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Stainless steel, hexagonal washer head; self-drilling, screws, No. 10 minimum diameter.

Touch up Paint: Manufacturer approved matching color paint.

- E. Rust Primer: Rust-Oleum Black Rust Reformer or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories in compliance with notes, commentary, and load tables per the Steel Deck Institute "Manual of Construction with Steel Deck," Third Edition, MOC3-2016, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels if required to meet deflection limitations.
- C. Locate deck bundles to prevent overloading of supporting members.
- D. Place deck panels on the supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

Align cellular deck panels over full length of cell runs and align cells at ends of abutting panels.

- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.



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- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

Mechanical fasteners shall be used in lieu of welding. **Welding is not allowed.** Locate mechanical fasteners and install them according to deck manufacturer's written instructions.

### 3.3 ROOF DECK INSTALLATION

Fasten deck to structural supports and at side-lap and perimeter edge fastening: Fasten deck panels to structural supports in every other flute but not less than 12 inches. Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 36 inches, and as follows:

Mechanically fasten with self-drilling, No. 10 diameter or larger, stainless-steel screws.

- 2. Mechanically clinch or button punch

End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:

End Joints: Lapped 2 inches minimum

### 3.4 DETERMINATION OF DECK REPAIR OR REPLACEMENT

- A. **It shall be the Contractor's sole responsibility to determine the extent of roof deck repair and or replacement in compliance with the parameters set forth below.**

### 3.5 ROOF DECK REPLACEMENT

- A. Existing decking must be replaced if corrosion is severe to the point that the deck is structurally unsound or unable to provide a minimum roof fastener uplift resistance of 300 lbs. for adhered systems and 400 lbs. for mechanically attached or induction welded roofing systems or as required by the manufacturer of the new roof system.
- B. Match exists in deck in type, gauge, size and shape. Replacement lengths must span a minimum of 3 structural supports.

### 3.6 DECK PLATING

- A. Wire brush and clean localized areas of pin-holing and/or surface corrosion where corrosion is greater than 3mils, but deck is still structurally sound and able to provide a minimum uplift



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resistance of 300 lbs. for adhered roof systems and 400 lbs. for mechanically attached or induction welded roof systems or as required by the manufacturer of the new roof system.

B. Apply rust inhibitive primer over rusted or bare areas of deck surface.

1. Acceptable products:

a.) Rust-Oleum Black Rust Reformer or approved equal.

C. Deck Plating Installation

1. Overlay localized area with minimum 20-gauge G90 galvanized steel flat stock repair material and secure to existing metal deck.

2. Secure galvanized steel flat stock repair material with stainless steel hex head fasteners no more than 6 inches on center at edges and 12" on center over the interior of the plate.

### 3.7 WIRE BRUSH AND PAINT DECKING

Repair Painting: Wire brush and clean areas of surface corrosion where corrosion is less than 3mils.

Apply rust inhibitive primer over rusted or bare areas of deck surface.

2. Acceptable products:

a.) Rust-Oleum Black Rust Reformer or approved equal.

### 3.8 RE-ATTACH LOOSE DECKING

Secure loose roof decking into structural components.

Fasten decking with proper fasteners and fashion in accordance with insurance requirements, applicable codes, and roofing system manufacturer's requirements. Comply with Steel Decking Institute "Manual of Construction for Steel Deck" Third Edition, MOC3-2016.

2. Fasten loose roof deck side laps with stainless steel sheet metal screws as required.

### 3.9 POST-CONSTRUCTION TESTING ROOF FASTENER PULLOUT IN QUESTIONABLE AREAS OF EXISTING DECKS

A. At Consultant's and/or Owner's sole discretion post-construction roof fastener pullout testing at questionable roof deck areas may be required.



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- B. Testing shall be performed by consultant or others in accordance with ANSI/SPRI "Standard Field Procedure for Determining the Withdrawal Resistance of Roofing Fasteners" – Approved November 1, 2021.
- C. Contractors shall be required to be present and assist in the testing procedure.
- D. Contractors shall be required at their own expense to remedy all defective areas found.
- E. In cases of severe, widespread or areas deemed as Life Safety Issues the Consultant may require the services of a Licensed Professional Engineer to make a determination in regard to required remedies.
- F. Costs associated with engineering services shall be borne by the Contractor and the Contractor shall be obligated to complete repairs identified as defective work on their part at their own expense. Contractors shall not be held liable for defects found that were beyond their Scope of Work.

END OF SECTION 053100

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MISCELLANEOUS ROUGH CARPENTRY  
SECTION 06 1053

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SECTION 06 1053 - MISCELLANEOUS ROUGH CARPENTRY

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Rooftop equipment bases and support curbs
  - 2. Wood blocking and nailers
- B. Related Requirements:

- 07 5419 "Polyvinyl Chloride (PVC) Roofing"
  - 2. 07 6200 "Sheet Metal Flashing and Trim"

1.3 DEFINITIONS

Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

Lumber grading agencies, and the abbreviations used to reference them, include the following:

- NeLMA: Northeastern Lumber Manufacturers' Association
- 2. NHLA: National Hardwood Lumber Association
  - 3. NLGA: National Lumber Grades Authority
  - 4. SPIB: The Southern Pine Inspection Bureau
  - 5. WCLIB: West Coast Lumber Inspection Bureau
  - 6. WWPA: Western Wood Products Association

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.



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2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site. (Omit if not requiring treated lumber products)

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

WOOD PRODUCTS, GENERAL

Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated. Factory mark each piece of lumber with grade stamp of grading agency.

- B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  1. Blocking
  2. Nailers
  3. Rooftop equipment bases and support curbs
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any of the following species:

Hem-fir (north); NLGA



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2. Mixed southern pine; SPIB
3. Spruce-pine-fir; NLGA
4. Hem-fir; WCLIB or WWPA
5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA

Western woods; WCLIB or WWPA

Northern species; NLGA

Eastern softwoods; NeLMA

For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. Provide wood-preserved and/or fire-retardant lumber as indicated on Contract Drawings.

### 2.3 PLYWOOD PANELS

- A. Panels: DOC PS 1, Exterior, AC, in thickness indicated on Contract Drawings
- B. Provide wood-preserved and/or fire-retardant panels as indicated on Contract Drawings.

### FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture. All fasteners must be approved for use with wood-preserved-treated lumber.
- B. Nails, Brads, and Staples: ASTM F 1667

Power-Driven Fasteners: NES NER-272

- D. Wood Screws: ASME B18.6.1

Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.



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2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  1. Use inorganic boron for items that are continuously protected from liquid water.
  2. Use copper naphthenate for items not continuously protected from liquid water.
- E. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

NES NER-272 for power-driven fasteners.

Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3 2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

Use steel common nails approved for use with wood-preserved-treated lumber unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other



MISCELLANEOUS ROUGH CARPENTRY  
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work involved. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

PROTECTION

Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 1053

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POLYVINYL CHLORIDE (PVC) ROOFING  
SECTION 07 5419

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SECTION 07 5419 – POLYVINYL CHLORIDE (PVC) ROOFING

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

- B. Contractor will pull all the appropriate Permits and post at the appropriate location as identified by the Building Owner.
- C. All job site safety requirements will remain in place throughout the course of construction for this project and shall include the following minimum requirements. Any additional Building Owner requirements will be adhered once reviewed during the pre-construction meeting:
  - All crew members while on site will wear safety vests.
  - All vehicles will be parked in the appropriate designated area identified by the Building Owner.
  - All access to the project will be provided by the Contractor. At no time is the crew to traverse into or through any building for any reason.
  - Contractor will provide all their required dumpsters, Porta John, lift equipment, etc. throughout the time of construction.
  - Contractor shall remove access to the roof daily as to protect from any public access when the Contractor is not on site.
  - No drugs or alcohol is permitted on site at any time and would be cause for immediate removal.
  - Contractor shall provide all General Liability and Workmen Compensation paperwork upon request.

1.2 SUMMARY

- A. Section Includes:
  - 1. Ballasted Polyvinyl Chloride (PVC) roofing system
  - 2. Roof Insulation
  - 3. Coverboard
  - 4. Walkways



POLYVINYL CHLORIDE (PVC) ROOFING  
SECTION 07 5419

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B. Scope of Work:

1. The scope of work includes the installation of the new roof system to be installed in such a manner as to maintain a watertight integrity daily. Over the cleaned and prepared substrate, a basis of design Ballasted 80 mil PVC membrane system shall be installed in order to meet the project's wind up-lift requirements. All flashing membranes and PVC coated clad metal will be installed in accordance with the PVC manufacturer's specifications or recommendations. The completed roof system, PVC manufacturer's supplied accessories, cover board, and polyisocyanurate shall be installed in such a manner so that the PVC manufacturer's Twenty (30)-year Full Systems (NDL) Warranty can be issued upon successful completion of the roofing project.

C. Related Requirements:

Section 06 1053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking; and for wood-based, structural-use roof deck panels

2. Section 076 200 "Sheet Metal Flashing and Trim" for metal drainage components, metal roof flashings and counterflashing's
3. Section 07 9200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation
4. Section 22 1423 "Storm Drainage Piping Specialties" for roof drains

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to Work of this Section.

1.4 PREINSTALLATION MEETINGS

Preliminary Roofing Conference:

1. Convene meeting a minimum of one week before the start the work of this section.
2. Meet with Owner, Consultant, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including mechanical trades
3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
4. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.



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6. Review governing regulations and requirements for insurance and certificates if applicable.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.

ACTION SUBMITTALS

- A. Product Data: For each type of product.
  1. For insulation and roof system component fasteners, include copy of manufacturers Assembly Letter of Approval for this project.
- B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
  1. Base flashings and membrane termination details
  2. Roof plan showing slopes, layout of insulation boards & materials, provided by manufacturer of insulation
  3. Crickets, saddles, and tapered edge strips, including slopes
  4. Insulation fastener patterns for corner, perimeter, and field of roof
- C. Samples for Verification: For the following products:

Sheet roofing: Color to be White.

- D. Documentation of the proposed systems FM testing.
- E. All submittals shall be reviewed by the consultant and approved prior to the start of the work.

1.6 INFORMATIONAL SUBMITTALS

Qualification Data: For Installer

- B. Manufacturer Certificates:
  1. Submit evidence of compliance with performance requirements.
- C. Sample Warranties: For manufacturer's special warranties.



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1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.
- B. A copy of the manufacturers final inspection report.

QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL and FM Global listed.
- B. Installer Qualifications: Installer shall be specializing in PVC thermoplastic membrane roofing applications with a minimum of five (5) years' experience and approved in writing by manufacturer of roofing material.
- C. Installers Roofing Mechanic Qualifications: The roofing mechanics engaged with the operation of the thermoplastic hot air welding must be trained and authorized by the manufacturer. The roofing mechanic must have at least five years' experience operating the robotic hot air welding equipment.
- D. Prior to starting the project, the applicator shall conduct fasteners pullout tests in accordance with the latest version of the SPRI/ANSI Fastener Pullout Standard to verify the condition of the deck condition and to confirm expected pullout values. Pullout test results must be compiled in a professional report showing the location of each test. These results must be provided to the Roof Consultant a minimum of one week before the start of the project.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.



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1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Apply roofing system in dry conditions only.
- C. When ambient temperature is below 45 degrees, expose only enough sensitive cements, sealants and adhesives that can be installed in four hours.
- D. Protection: Provide special protection and avoid traffic on completed areas of membrane installation.
  - 1. Restore to original condition or replace work or materials damaged during handling of roof materials.
  - 2. Take precautions as required to protect adjacent work and structures.
- E. Emergency Equipment: Maintain on site equipment necessary to apply emergency temporary edge seal in event of sudden storms or inclement weather.
- F. Restrictions:
  - 1. Comply with General Requirements on use of site
  - 2. Smoking is prohibited on all roof areas and on campus grounds
  - 3. Maintain facility and all utility services in a functional condition
  - 4. Provide sanitary facilities for employees.

1.11 WARRANTY

Manufacturer Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

- B. Roofing Manufacturer's Warranty: Submit a written warranty, without monetary limitation, with all available options, including flashing endorsement, manufacturer's roof insulation and roofing manufacturer's accessories, signed by roofing system manufacturer's agreement to promptly repair leaks resulting from defects in materials or workmanship for the following warranty period:

Warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, roofing accessories and other components of roofing system.

Warranty Period: 30 years from date of Substantial Completion.



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3. Wind Warranty: Manufacturer's seventy-two (72) mph wind warranty

Contractor Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, and walkway products, for the following warranty period:

Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing system and flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings shall remain watertight.

Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.

2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D 3746, ASTM D 4272.

- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.

Fire/Windstorm Classification: Class 1A-90

2. Hail-Resistance Rating: SH

Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.



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Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

- F. Wind Uplift Design: Comply with ASCE 07-22 Design Wind Uplift Pressure requirements including safety factors as shown in Project Documents. See Drawings for requirements.

2.3 POLYVINYL CHLORIDE (PVC) ROOFING

PVC Sheet: ASTM D 4434/D 4434/M, Type III internally fabric- or scrim-reinforced sheet.

Manufacturers: Subject to compliance with requirements, provide following products by one of the manufacturers offering products that may be incorporated into the work:

- a. Sika
- b. Duro Last
- c. Approved Equal

Thickness: 80 mils

Exposed Face Color: White

2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.

Liquid type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement thickness and color as PVC sheet.

Bonding Adhesive: Manufacturer's standard adhesive

Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

- E. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, pre-punched.



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- F. Miscellaneous Accessories: Provide manufacturer's standard PVC clad sheet metal, pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

## 2.5 ROOF INSULATION

General: Preformed roof insulation boards manufactured or approved by roof membrane manufacturer, selected from manufacturer's standard sizes suitable for application, of thickness' indicated and approved for use in FM Global RoofNav-listed roof assemblies.

Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.

- 1. Manufacturers: Subject to compliance with requirements, provide products by:
  - a. Sarnafil
  - b. Duro Last
  - c. Approved Equal

Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.

- 1. Provide preformed saddles, crickets, taper edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated at a minimum slope of 1/2 inch per 12 inches unless otherwise indicated.
- 2. Provide factory pre-formed saddles and crickets as required behind rooftop units that obstruct proper drainage.

## 2.6 COVERBOARD

- A. Gypsum Fiber Cover Board: ASTM C 1278, Cellulosic-fibered reinforced, water-resistant gypsum substrate,
  - 1. Manufacturers: Subject to compliance with requirements, provide the following:
    - a. **Dexcell Cement Cover Board**
  - 2. **Thickness 5/8"**

## INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing



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Insulation Adhesive: Roofing manufacturer's bead-applied, low-rise, one-component or multi-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer

2. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate and acceptable to roofing system manufacturer. Fasteners shall penetrate the top rib of the roof decking a minimum of 3/4".
3. Fastener color: Standard unless fasteners are exposed in public then match to deck underside color

#### WALKWAYS

Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick and acceptable to roofing system manufacturer.

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
  1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
  2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

Proceed with installation only after unsatisfactory conditions have been corrected.

##### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

#### ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions.



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- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning Work on adjoining roofing.

Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

INSULATION INSTALLATION

- A. Coordinate installing roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Do not install wet or warped insulation boards. Warped insulation boards shall be considered damaged and shall be promptly removed from site at Contractor's expense.
- C. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- D. Miter and fill the edges of the insulation boards at ridges, valleys and other changes in plane to prevent open joints or crushing of the insulation at the corners.
- E. Damaged insulation board corners shall be cut out and replaced with an insulation piece a minimum 12" x 12". Pieces that are cut from larger panels that are smaller than one (1) square foot are not acceptable.

Install insulation on area of roofing to achieve required thickness. Stagger joints of each succeeding layer staggered from joints of previous layer a minimum of 12 inches in each direction.

Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

- H. Taper roof insulation to create drain sumps. All taper boards or pieces must be securely adhered or mechanically fastened with a minimum of two (2) fasteners per piece.
- I. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
  - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- J. Fasteners and adhesives shall be installed in accordance with manufacturer's recommendations, fasteners shall comply with minimum fastener penetration for specific deck types when applicable.



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- K. Additional adhesive and fasteners shall be installed in accordance with manufacturer specifications and/or specified uplift requirements to provide perimeter and corner wind uplift enhancements.

### 3.5 INSTALLATION OF COVER BOARDS

Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.

1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.
  - a. Trim cover board so that water flow is unrestricted.
3. Cut and fit cover board tight to nailers, projections, and penetrations.

### 3.6 BALLASTED ROOFING INSTALLATION.

- A. The surface of the insulation, roof board, or substrate shall be inspected prior to installation of the PVC roof membrane. The substrate shall be clean, dry, and free from debris and smooth with no surface roughness or contamination. Broken, delaminated, wet or damaged boards shall be removed and replaced. Tack welding of the PVC membrane field sheets for purposes of temporary restraint during installation is not permitted and may result in rejection of the installation.
- B. Loose laid Installation unroll roof membrane and loose lay over prepared substrate. Allow membrane to relax before installing. Adjacent sheets shall be overlapped 3" (76 mm) and heat-welded together. A 3 OZ poly mat protection layer is required before installing the ballast layer.
- C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- D. Accurately align roof membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- E. Mechanically fasten and/or adhere roof membrane securely at terminations, penetrations, and perimeter of roofing.
- F. Apply roof membrane with side laps shingled with slope of roof deck where possible.
- G. All installed cover board and insulation shall be covered with new PVC membrane daily.



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- H. All installed PVC membrane seams shall be fully hot are welded daily.
- I. Seams: Clean seam areas, overlap roof membrane, hot-air weld side and end laps of roof membrane and sheet flashings to ensure a watertight seam installation.
  - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roof membrane and flashing sheet.
  - 2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas. 1" wide cross sections samples of welded seams shall be taken at least twice daily. Once in the morning and once in the afternoon.
  - 3. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.
  - 4. All field seams are to be machine welded on a daily basis NO EXCEPTION

### 3.7 MEMBRANE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.
- F. All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Owner's Representative and PVC manufacturer. Approval shall only be for specific locations on specific dates. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces. Use caution to ensure adhesive fumes are not drawn into the building
- G. All flashings shall extend a minimum of 8" above the finished roof surface.
- H. If any water is allowed to enter under the newly completed roofing due to incomplete flashing, the affected area shall be removed and replaced at the Applicator's expense.



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3.8 WALKWAY INSTALLATION

- A. Walkways: Install PVC walk pad or walkway from the point of entrance onto the roof. Install walk pad or walkway according to PVC manufacturer's written instructions.
1. Clean all dirt and debris from the deck membrane in areas where the walkway will be installed. Important: Check all deck membrane welds with a rounded probe prior to installation of walkway. Re-weld any inconsistencies before walkway installation.
  2. Roofing membrane to receive walkway shall be clean and dry. Place chalk lines on deck sheet to indicate location of walkway. Apply a continuous coat of contact adhesive to the deck sheet and to the back of Walkway in accordance with manufacturer's technical requirements. Press walkway into place with a water-filled, foam-covered lawn roller. Hot-air weld the entire perimeters of the walk pad or walkway to the PVC deck sheet.
  3. Check all walkway seam welds with a rounded screwdriver. Re-weld any inconsistencies found in the walkway seams.

3.9 FIELD QUALITY CONTROL

- A. Roofing Applicator: the contractor shall make On-site evaluation of welded seams to locations as directed by the owner's representative or PVC manufacturer's technical representative. One-inch wide cross-sections samples shall be taken three times a day minimum through completed seams. Correct welds shall display failure from shearing the membrane prior to separation of weld. The contractor at no extra charge to owner shall patch each test cut. Test seam samples shall be label with locations of seam cut, date of seam cut, and retain for owner' representative or PVC manufacturer's technical representative for test cut inspections. At the close of project, all seam test cuts are to be submitted to the owner's representative for review.

Roof Inspections: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation at 50% of completion and then a comprehensive final inspection after completion of the roof system. All application errors shall be addressed and final punch list items completed .

1. Notify Consultant and Owner 48 hours in advance of date and time of inspections.
  2. RAM Companies shall be provided copies of all manufacturer inspection reports with in seven days of the inspection.
- B. Roofing system will be considered defective if it does not pass tests and inspections.
1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.



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3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during the construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Consultant and Owner.
- B. Protect and maintain the new membrane roofing surface from soiling and staining. Soiling and staining which affect the aesthetic appearance of the finished roofing will be cause for rejection and require replacement. Rejection of soiled or stained membrane shall be solely at the discretion of the Building Owner and/or Building Owner's representative.
- C. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.11 Acceptance

- A. Prior to demobilization from the site, the owner/project manager, manufacturer technical representative and installer shall review the completed work. All defects noted in noncompliance with the specifications or the recommendations of the PVC manufacturer should be itemized in a punch list. These items must be corrected immediately by the contractor prior to demobilization to the satisfaction of the owner/project manager, and the PVC manufacturer.
- B. All warranties as required for the project of this specification shall be submitted for approval prior to final payment.

3.12 ROOFING INSTALLER'S WARRANTY

WHEREAS \_\_\_\_\_ of \_\_\_\_\_, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

- 1. Owner: **<Insert name of Owner>**.
- 2. Address: **<Insert address>**.
- 3. Building Name/Type: **<Insert information>**.
- 4. Address: **<Insert address>**.
- 5. Area of Work: **<Insert information>**.



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6. Acceptance Date: \_\_\_\_\_.
  7. Warranty Period: <Insert time>.
  8. Expiration Date: \_\_\_\_\_.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
    - a. lightning.
    - b. peak gust wind speed exceeding 72 mph
    - c. fire.
    - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition.
    - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work.
    - f. vapor condensation on bottom of roofing; and
    - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
  2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
  3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
  4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for



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claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

1. Authorized Signature: \_\_\_\_\_.
2. Name: \_\_\_\_\_.
3. Title: \_\_\_\_\_.

END OF SECTION 07 5419



SHEET METAL FLASHING AND TRIM  
SECTION 07 6200

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SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Formed low-slope roofing and waterproofing sheet metal fabrications fabricated and installed to SMACNA standards to match the existing profiles and finishes.
- 2. Roof drainage components

B. Related Requirements:

- 1. Section 06 1053 Miscellaneous Rough Carpentry
- 2. Section 07 5419 Polyvinyl Chloride (PVC) Roofing

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: As noted in Section 07 5219 Polyvinyl Chloride (PVC) Roofing

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory

B. Shop Drawings: For sheet metal flashing and trim



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1. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
  2. Include identification of material, thickness, weight, and finish for each item and location in Project.
- C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.
- D. Samples for Verification: For each type of exposed finish.
1. Aluminum and/or Steel Kynar Fluoropolymer Finish Samples: Samples to show full range to be expected for each color required.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
1. Field installation team members shall have a minimum of five years' experience installing similar flashing systems.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.8 WARRANTY

- A. Metal flashings shall be included in the manufacturers edge to edge guarantee coverage of the Polyvinyl Chloride (PVC) roofing system as noted in Section 07 5219 Polyvinyl Chloride (PVC) roofing



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PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. SPRI Wind Design Standard: Manufacture and install copings tested according to SPRI ES-1

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B209 alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required;
  - 1. Surface: Smooth, flat
  - 2. Exposed Coil-Coated Finish:
    - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 (Z275) coating designation; pre-painted by coil-coating process to comply with ASTM A755/A755M.
  - 1. Exposed Coil-Coated Finish:
    - a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.



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2. Nonpatinated Exposed Finish: Mill.

D. Thermoplastic Coated Heat Weldable Sheet:

1. ASTM 653, G90 galvanized steel sheet with minimum 20 mil thermoplastic membrane laminate. Minimum steel gauge to be twenty-four gauge (24 ga.)

### 2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

1. Products: Subject to compliance with requirements, provide the following:
  - a. Carlisle Residential, a division of Carlisle Construction Materials; WIP 300HT.
  - b. Grace Construction Products, a unit of W. R. Grace & Co.-Conn.; Grace Ice and Water Shield HT.
  - c. Or Equal
2. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C) or higher.
3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C) or lower.

### 2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
  - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM washers under heads of exposed fasteners bearing on weather side of metal.
  - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened
2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel



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3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel

C. Solder:

1. For Stainless Steel: ASTM B 32, Grade Sn60 or Grade Sn96, with acid flux of type recommended by stainless-steel sheet manufacturer.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

2.5 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

2. Obtain field measurements for accurate fit before shop fabrication.

3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."



SHEET METAL FLASHING AND TRIM  
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- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
- G. Cleats shall be continuous.
- H. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- I. Do not use graphite pencils to mark metal surfaces.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Fabricated Shapes: Fabricate minimum 96-inch long, but not exceeding 10-foot long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg.
  - 1. Flashing Profile: As shown on Drawings
  - 2. Joint Style: Butted with expansion space and 6-inch wide, concealed backup plate
  - 3. Fabricate from the Following Materials:
    - a. Match existing materials and profiles.
- B. Counter flashing: Fabricate from the following materials:
  - 1. Match the existing materials and profiles

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
  - 1. Verify compliance with requirements for installation tolerances of substrates.



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2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  3. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks
  4. Torch cutting of sheet metal flashing and trim is not permitted
  5. Do not use graphite pencils to mark metal surfaces
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
- C. Fasteners: Use fastener sizes that penetrate [wood blocking or sheathing not less than 1-1/4 inch for nails and not less than 3/4 inch for wood screws but not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not solder aluminum sheet.
  2. Do not use torches for soldering.



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3. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
4. Stainless-Steel Soldering: Tin edges of uncoated sheets, using solder for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

### 3.3 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate as shown on Drawings.
- C. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.
- D. Copings: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated.
  1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate as shown on Drawings.
  2. Anchor interior leg of coping with washers and screw fasteners through slotted holes as shown on Drawings.
- E. Copings: Anchor to resist uplift and outward forces according to recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for specified FM Approvals' listing for required windstorm classification.
- F. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Extend counterflashing 4 inches over base flashing.
- G. ALL COPING AND ROOF EDGE FLASHINGS ARE TO UTILIZE A CONTINUOUS HOOK STRIP.

### 3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.



SHEET METAL FLASHING AND TRIM  
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- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200



SHEET METAL FLASHING AND TRIM  
SECTION 07 6200

RAM Companies LLC.  
Moorhead Area Public Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacements

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STORM DRAINAGE PIPING SPECIALTIES  
SECTION 22 1423

RAM Companies LLC  
Moorhead Area Public Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacements

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SECTION 22 1423 - STORM DRAINAGE PIPING SPECIALTIES

GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof drains
2. Miscellaneous storm drainage piping specialties
3. Flashing materials

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated

1.4 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agencies.

PART 2 - PRODUCTS

METAL ROOF DRAINS

Cast-Iron, Large-Sump, General-Purpose Roof Drains:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Josam Company

- b. Smith, Jay R. Mfg. Co.
  - c. Zurn Plumbing Products Group; Specification Drainage Operation
  - d. Wade Company
- 
2. Standard: ASME A112.6.4, for general-purpose roof drains
  3. Body Material: Cast iron
  4. Dimension of Body: Match existing
  5. Outlet: Bottom
  6. Underdeck Clamp: Required



STORM DRAINAGE PIPING SPECIALTIES  
SECTION 22 1423

RAM Companies LLC  
Moorhead Area Public Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacements

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7. Dome Material: Cast iron
8. Description: Manufactured, gray-iron casting, for attaching to existing piping
9. Outlet Size to match existing piping

EXECUTION

3.1 INSTALLATION

- A. Replace existing retrofit drain inserts, broken or deficient drains and/or components with new cast iron matching components.
- B. Replace all existing plastic drain strainers with new cast iron strainers.

Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.

1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain the integrity of waterproof membranes where penetrated.
2. Position roof drains for easy access and maintenance

3.2 CONNECTIONS

Comply with requirements for piping specified in Section 22 1413 "Facility Storm Drainage Piping."

3.3 PROTECTION

- A. Protect drains during construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 22 1423



STORM DRAINAGE PIPING SPECIALTIES  
SECTION 22 1423

RAM Companies LLC  
Moorhead Area Public Schools  
S.G. Reinertsen Elementary and Horizon Middle School Roof Replacements

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OVERALL ROOF PLAN

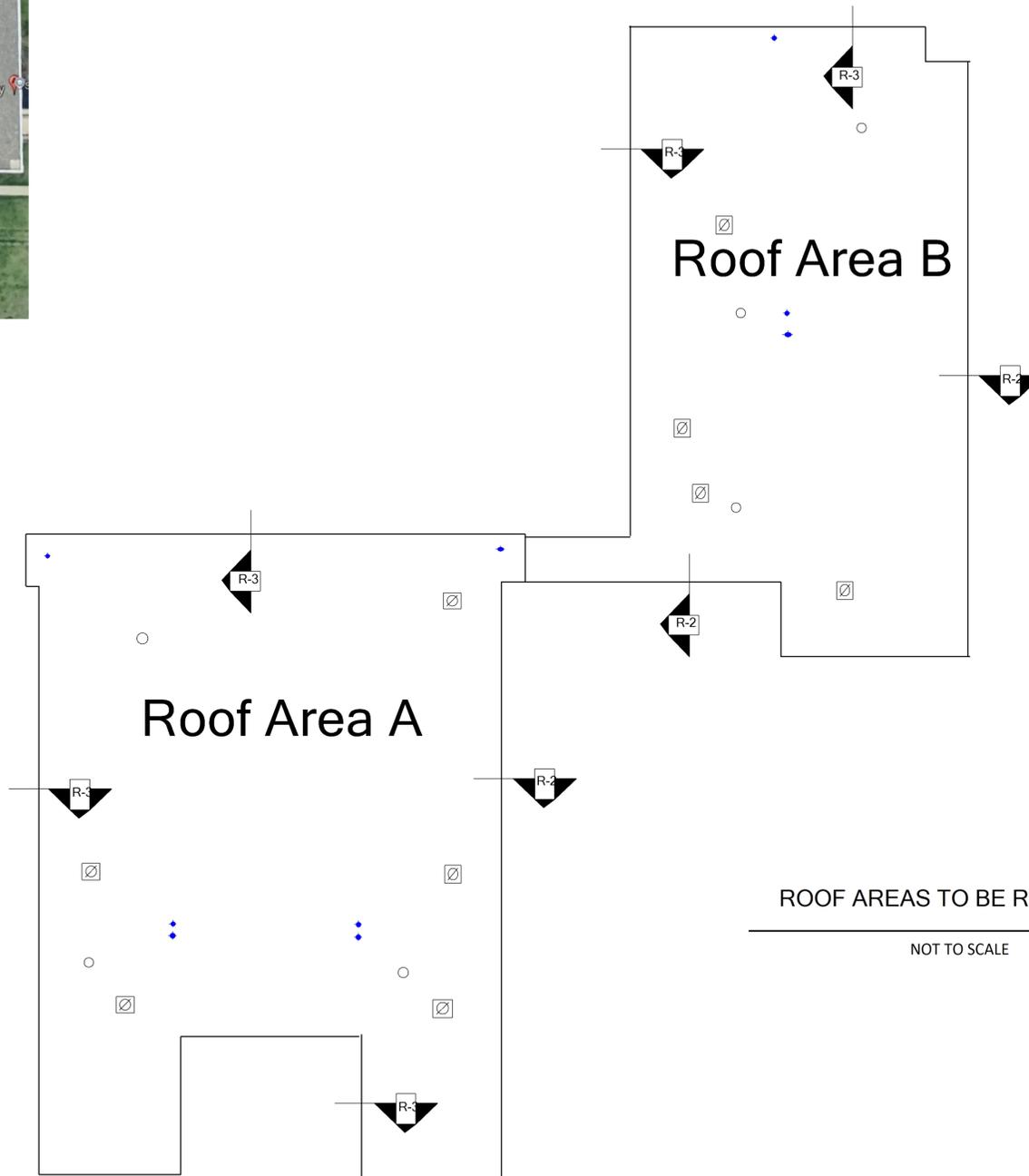
NOT TO SCALE

**SYSTEM DESCRIPTION:**

1. Existing Ballasted EPDM Roofing System W/ 1/2" fiber Board, tapered polyisocyanurate insulation and 5/8" type X gypsum
2. Move and store the existing stone ballast
3. Remove and Dispose of the existing EPDM
4. Remove and Dispose of any existing wet insulation. Replace with new like insulation
5. Install new Dexcell Cement Cover Board
6. Install new 80 Mil PVC System.
7. Install 3oz Polymat separation sheet
8. Reset stone ballast

**TYPICAL ROOF NOTES:**

- 1.) ALL SYSTEM DETAILS ARE TO BE INSTALLED PER THE MANUFACTURES REQUIREMENTS QUALIFYING FOR GUARANTEE.
- 2.) CONTRACTOR TO BE RESPONSIBLE FOR ALL CONSTRUCTION COSTS INCLUDING MECHANICAL TO RAISE EXISTING CURBS TO A WARRANTABLE HEIGHT
- 3.) PROVIDE AND INSTALL MANUFACTURER APPROVED WALKPADS AT ALL ROOF ACCESS POINTS AND ROOFTOP UNITS.
- 4.) REMOVE AND DISPOSE OF THE EXISTING METAL COPING. PROVIDE AND INSTALL NEW COPING PER SPECIFICATIONS.
- 5.) ALL EQUIPMENT AND ROOF HATCHES ARE TO BE A MINIMUM OF 8" ABOVE THE NEW FINISHED ROOF SURFACE.
- 6.) RAISE AND RESET EXISTING COUNTERFLASHING. EXISITING THRUWALL FLASHING IS NOT TO BE DISTURBED OR COVERED.
- 7.) ALL SEALANT PANS ARE TO BE PVC COATED METAL. SPECIAL CARE GIVEN TO WASHING AND PRIMING THE INTERIOR PAN SURFACE.
- 8.) MECHANICAL, ELECTRICAL AND PLUMBING ROOF EQUIPMENT SHOWN ON THIS PLAN IS FOR GENERAL ARCHITECTURAL INFORMATION ONLY. FIELD VERIFY EXACT QUANITY AND LOCATION OF EQUIPMENT.
- 9.) ALL SATILITTE DISHES AND BDA ANTENNAS ARE TO BE RESET INTO THEIR EXACT LOCATIONS.
- 10.) OFFSET ALL INSULATION JOINTS A MINIMUM OF 12"
- 11.) MINIMUM GAUGE FOR COPING: STEEL - 24 GA., COPPER - 16 OZ., ALUMINUM - .040" THICKNESS (REFER TO SMACNA MANUAL 6TH EDITION 2003)
- 12.) CLEAT METAL THICKNESS TO BE ONE GAUGE HEAVIER THAN COPING METAL
- 13.) NEW COPING TO BE OF SUFFICIENT LENGTH TO COVER ANY PAINT LINES, FADING OR OTHER AESTHETIC DEFECTS PREVIOUSLY COVERED BY ANY EXISTING FASCIA/EDGE
- 14.) NAILERS SHALL BE ANCHORED TO RESIST A VERTICAL LOAD OF 300 LBS/FT OR THE DESIGN LOAD WHICHEVER IS GREATER, REFER TO FMG DATA SHEET 1-49
- 15.) CONTRACTOR IS RESPONSIBLE TO VERIFY ALL QUANITIES



ROOF AREAS TO BE REPLACED

NOT TO SCALE

ASCE 07-22 ULTIMATE WIND PRESSURE UPLIFT DESIGN  
 Risk Category III Exposure Category B  
 Wind Speed Velocity 125 mph  
 Building Enclosure Classification - Enclosed

Zone 1' Interior Field -25.7 lbs. per sq. ft.  
 Zone 1 Exterior Field -44.8 lbs. per sq. ft.  
 Zone 2 Perimeters -59.1 lbs. per sq. ft.  
 Zone 3 Corners -80.5 lbs. per sq.ft.

NOTE: APPLY SAFETY FACTOR of x 1.3

**FMG UPLIFT REQUIREMENTS**

Zone 1' FM 1-60  
 Zone 1 FM 1-60  
 Zone 2 FM 1-90  
 Zone 3 FM 1-105

**WIND ZONE DIMENSIONS**

Zone 1' balance of interior field  
 Zone 1 building height x 0.6  
 Zone 2 building height x 0.6  
 Zone 3 width = building building height x 0.2  
 length = building height x 0.6

**PROTRUSION LEGEND**

| SYMBOL | PROTRUSION                  | DETAIL REFERENCES |
|--------|-----------------------------|-------------------|
| •      | ROOF DRAIN                  | R-4               |
| —      | NEW SCUPPER                 | R-9               |
| ○      | PLUMBING STACK              | R-5               |
| ▲      | MECHANICAL CURB             | R-7               |
| □      | MISC CURB                   | R-7               |
| —      | WALKWAY<br>(SEE NOTE No. 4) | R-11              |



PROJECT NAME: S.G. REINERTSEN ELEMENTARY  
 ADDRESS: 1202 40TH AVE S. MOOREHEAD, MN 56560  
 PROJECT TYPE: ROOF REPLACEMENT  
 OWNER: MOORHEAD AREA PUBLIC SCHOOLS

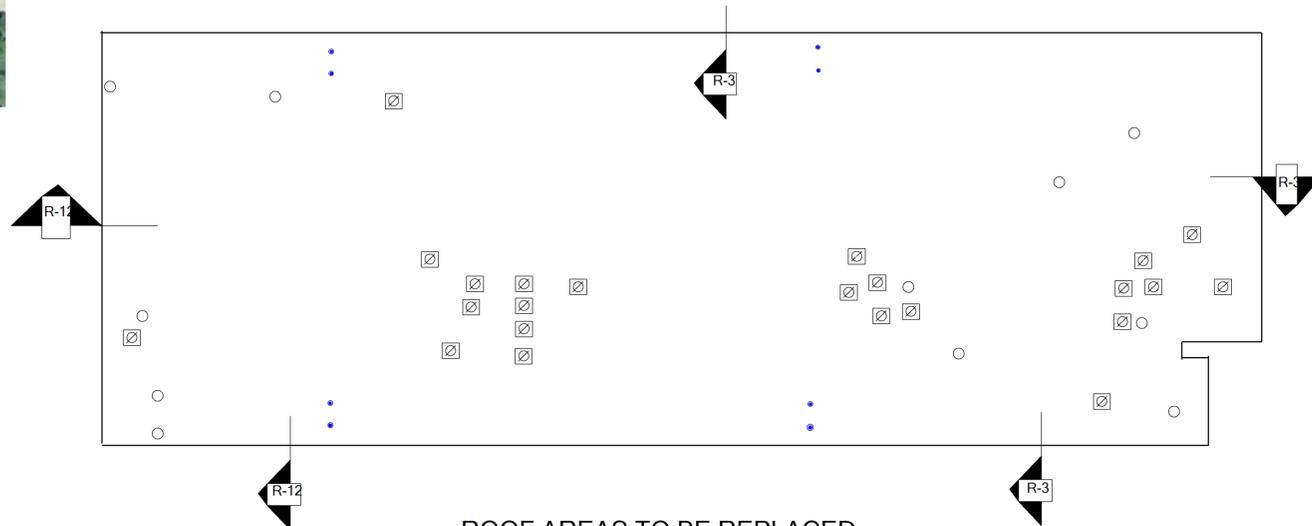
DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: RAM-260527  
 DWG. SHEET SIZE: 24 X 36 inches

DRAWING No.: **RP-1**



OVERALL ROOF PLAN

NOT TO SCALE



ROOF AREAS TO BE REPLACED

NOT TO SCALE

ASCE 07-22 ULTIMATE WIND PRESSURE UPLIFT DESIGN  
Risk Category III Exposure Category B  
Wind Speed Velocity 125 mph  
Building Enclosure Classification - Enclosed

Zone 1' Interior Field -25.7 lbs.per sq. ft.  
Zone 1 Exterior Field -44.8 lbs. per sq. ft.  
Zone 2 Perimeters -59.1 lbs. per sq. ft.  
Zone 3 Corners -80.5 lbs. per sq.ft.

NOTE: APPLY SAFETY FACTOR of x 1.3

FMG UPLIFT REQUIREMENTS

Zone 1' FM 1-60  
Zone 1 FM 1-60  
Zone 2 FM 1-90  
Zone 3 FM 1-105

WIND ZONE DIMENSIONS

Zone 1' balance of interior field  
Zone 1 building height x 0.6  
Zone 2 building height x 0.6  
Zone 3 width = building building height x 0.2  
length = building height x 0.6

PROTRUSION LEGEND

| SYMBOL | PROTRUSION                  | DETAIL REFERENCES |
|--------|-----------------------------|-------------------|
| •      | ROOF DRAIN                  | SP 01             |
| =      | NEW SCUPPER                 | SP 05             |
| ---    | NEW GUTTER                  |                   |
| ⊠      | MECHANICAL CURB             | SP 26             |
| □      | MISC CURB                   | SP 26             |
| —      | WALKWAY<br>(SEE NOTE No. 4) | SP 65             |
| ○      | PLUMBING STACK              |                   |

TYPICAL ROOF NOTES:

- 1.) ALL SYSTEM DETAILS ARE TO BE INSTALLED PER THE MANUFACTURES REQUIREMENTS QUALIFING FOR GUARANTEE.
- 2.) CONTRACTOR TO BE RESPONSIBLE FOR ALL CONSTRUCTION COSTS INCLUDING MECHANICAL TO RAISE EXISTING CURBS TO A WARRANTABLE HEIGHT
- 3.) PROVIDE AND INSTALL MANUFACTURER APPROVED WALKPADS AT ALL ROOF ACCESS POINTS AND ROOFTOP UNITS.
- 4.) REMOVE AND DISPOSE OF THE EXISTING METAL COPING. PROVIDE AND INSTALL NEW COPING PER SPECIFICATIONS.
- 5.) ALL EQUIPMENT AND ROOF HATCHES ARE TO BE A MINIMUM OF 8" ABOVE THE NEW FINISHED ROOF SURFACE.
- 6.) RAISE AND RESET EXISTING COUNTERFLASHING. EXISITING THRUWALL FLASHING IS NOT TO BE DISTURBED OR COVERED.
- 7.) ALL SEALANT PANS ARE TO BE PVC COATED METAL. SPECIAL CARE GIVEN TO WASHING AND PRIMING THE INTERIOR PAN SURFACE.
- 8.) MECHANICAL, ELECTRICAL AND PLUMBING ROOF EQUIPMENT SHOWN ON THIS PLAN IS FOR GENERAL ARCHITECTURAL INFORMATION ONLY. FIELD VERIFY EXACT QUANTITY AND LOCATION OF EQUIPMENT.
- 9.) ALL SATILITTE DISHES AND BDA ANTENNAS ARE TO BE RESET INTO THEIR EXACT LOCATIONS.

SYSTEM DESCRIPTION:

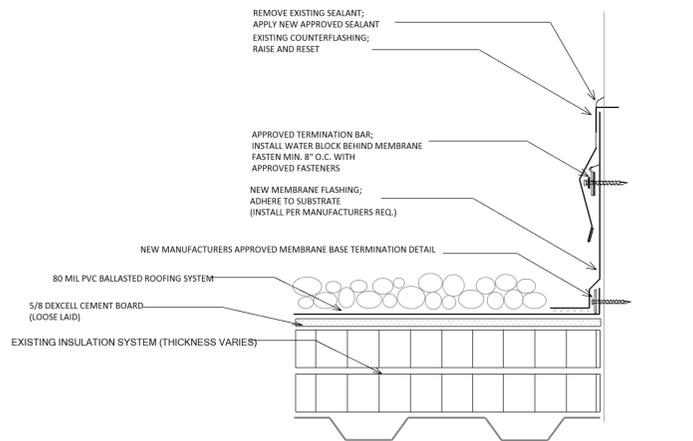
1. Existing Ballasted EPDM Roofing System W/ 1/2" fiber board, tapered polyisocyanurate insulation and 5/8" Type X Gypsum
2. Move and store the existing stone ballast
3. Remove and Dispose of the existing EPDM
4. Remove and Dispose of the existing wet insulation. Replace with new like insulation
5. Install new Dexcell Cement Cover Board
6. Install new 80 Mii PVC System.
7. Install new 3oz polymat seperation sheet
8. Reset existing ballast



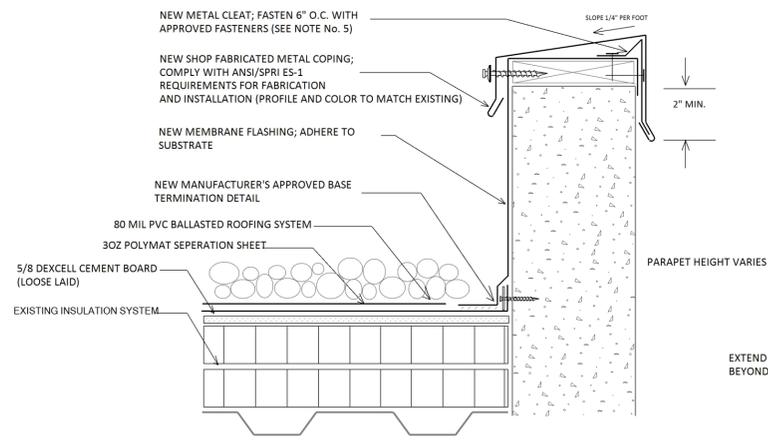
PROJECT NAME: HORIZON MIDDLE SCHOOL  
ADDRESS: 40TH AVE S. MOOREHEAD, MN 56560  
PROJECT TYPE: ROOF REPLACEMENT  
OWNER: MOORHEAD AREA PUBLIC SCHOOLS

DATE: February 12, 2026  
DRAWN BY: RAM Companies LLC  
PROJECT No.: RAM-260527  
DWG SHEET SIZE - 24 X 36 Inches

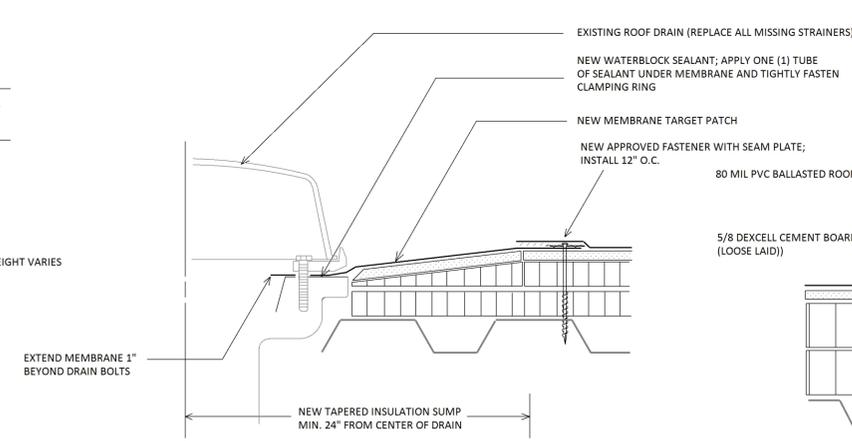
DRAWING No.:  
**RP-2**



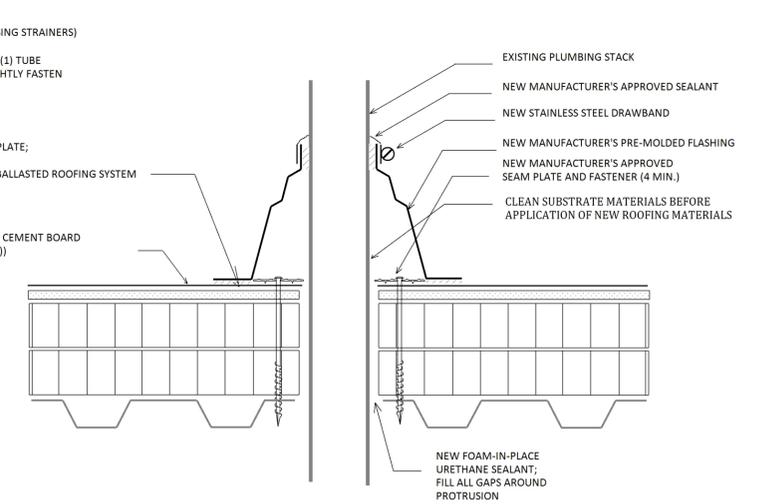
R-2 WALL FLASHING WITH EXISTING COUNTERFLASHING (RAISE AND RESET)



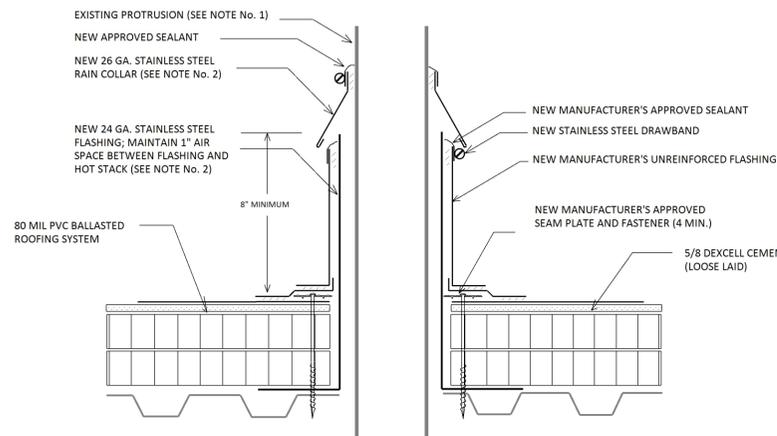
R-3 PERIMETER PARAPET WITH COPING



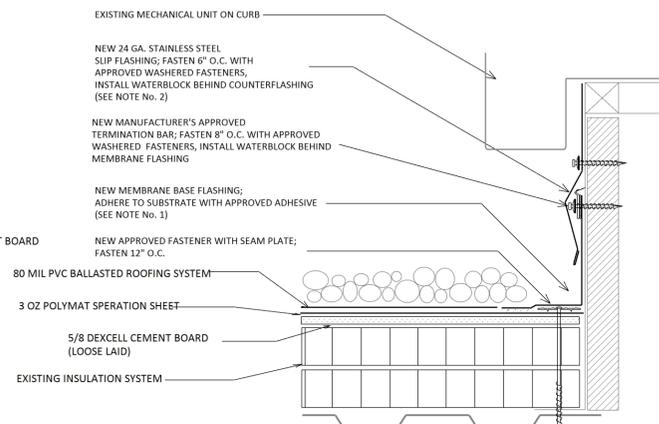
R-4 ROOF DRAIN



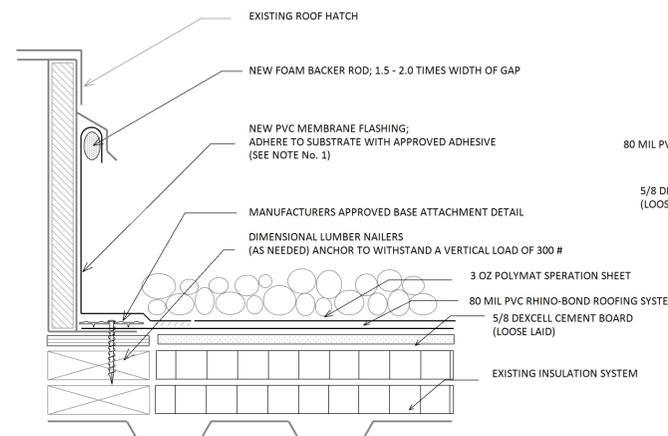
R-5 PLUMBING STACK



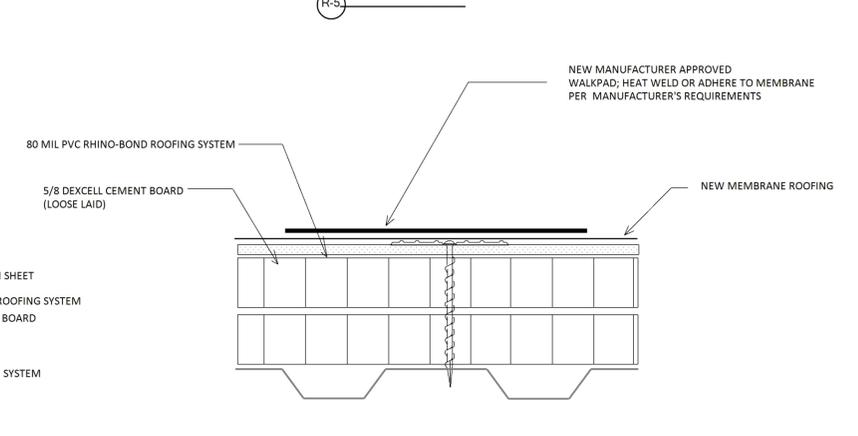
R-6 ROUND HOT STACK



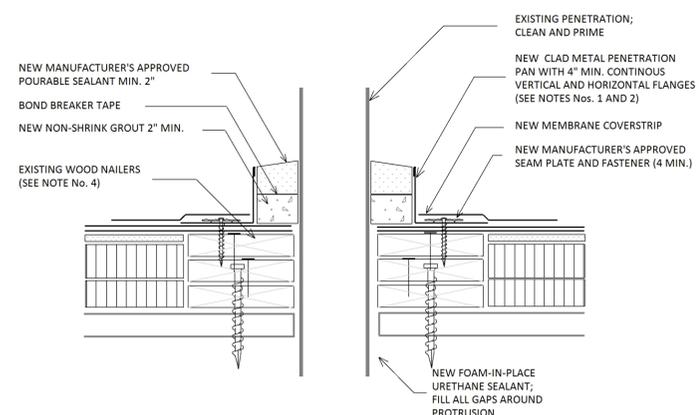
R-7 HVAC CURB FLASHING



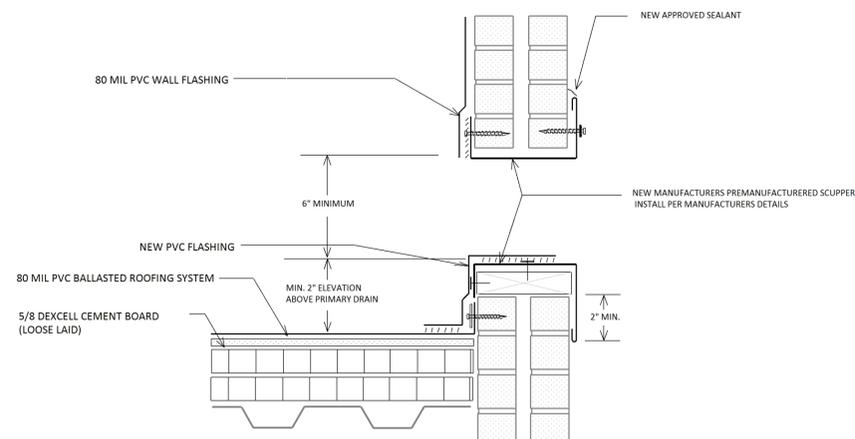
R-8 EXISTING ROOF HATCH FLASHING



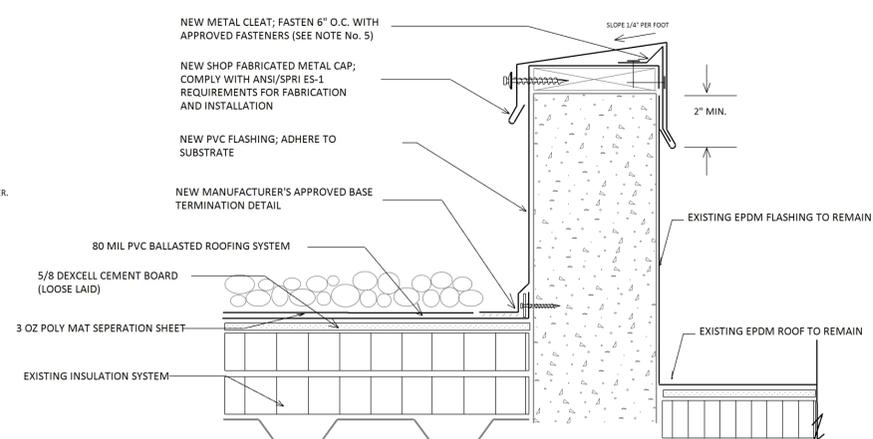
R-9 WALKPAD PROFILE



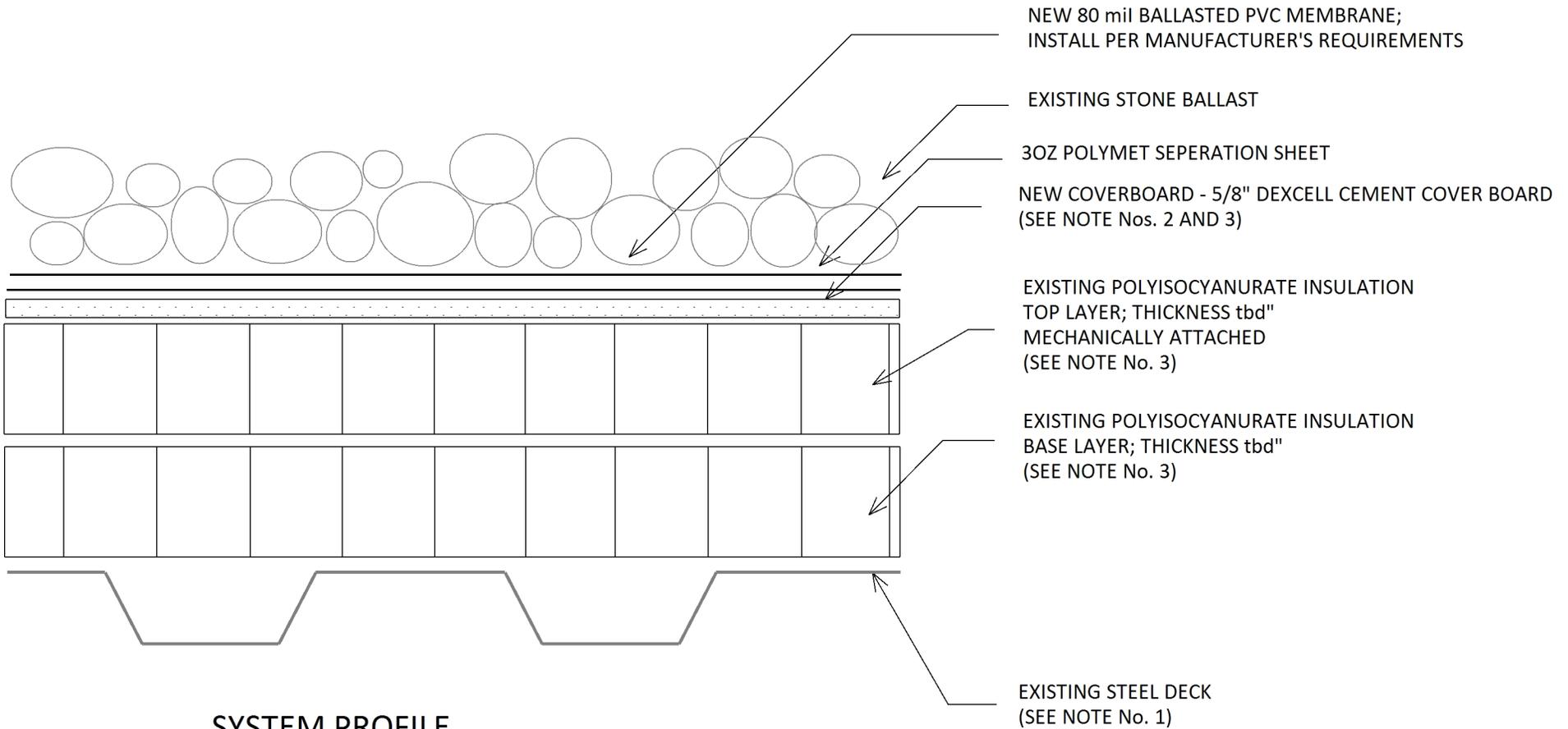
R-10 SEALANT PAN FLASHING



R-1 OVERFLOW THRU-WALL SCUPPER



R-12 AREA DIVIDER / TIE IN



**SYSTEM PROFILE**

NOT TO SCALE

NOTES:

- 1.) REPORT ANY STRUCTURAL DAMAGE TO OWNER'S REPRESENTATIVE IMMEDIATELY
- 2.) MECHANICALLY FASTEN INSULATION TO DECK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND ASCE 7-22
- 3.) OFFSET ALL INSULATION BOARD JOINTS A MINIMUM OF 12" IN ALL DIRECTIONS
- 4.) REPLACE ALL WET OR DETERIORATED EXISTING MATERIALS WITH NEW LIKE TYPE AND KIND
- 5.) SEE ROOF PLAN FOR COMPLETE ROOFING NOTES

PROJECT NAME: Moorehead Area Public Schools  
 S.G. Reinertsen Elementary  
 1201 40th Ave S  
 Moorehead, MN 56560

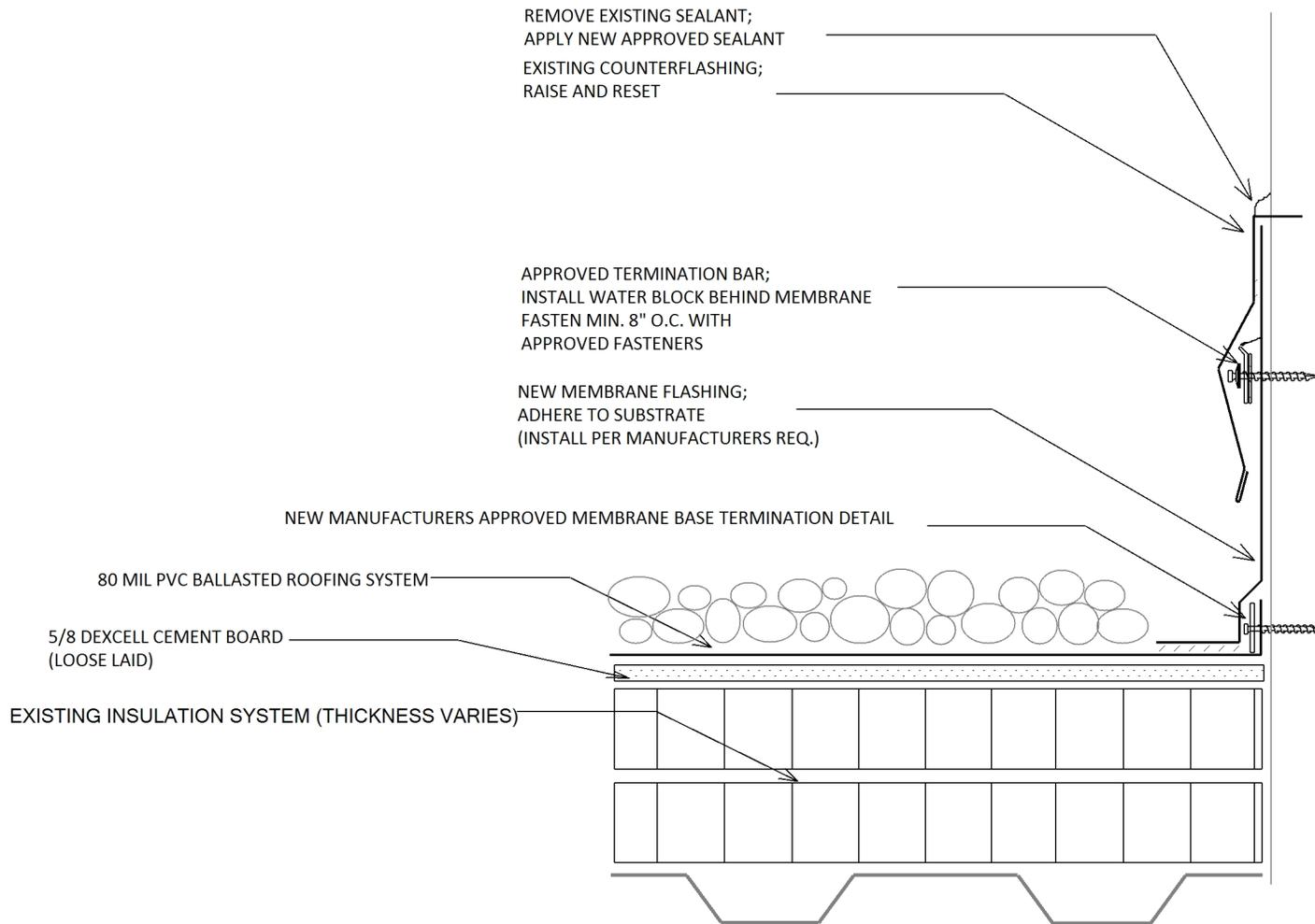
DATE: February 12, 2026  
 DRAWN BY: RAM COMPANIES LLC.  
 RAM PROJECT NO.: 260567  
 DWG SHEET SIZE: 8.5 X 11 inches

DETAIL No.:

**R-1**

0.25





**WALL FLASHING WITH EXISTING COUNTERFLASHING (RAISE AND RESET)**

NOT TO SCALE



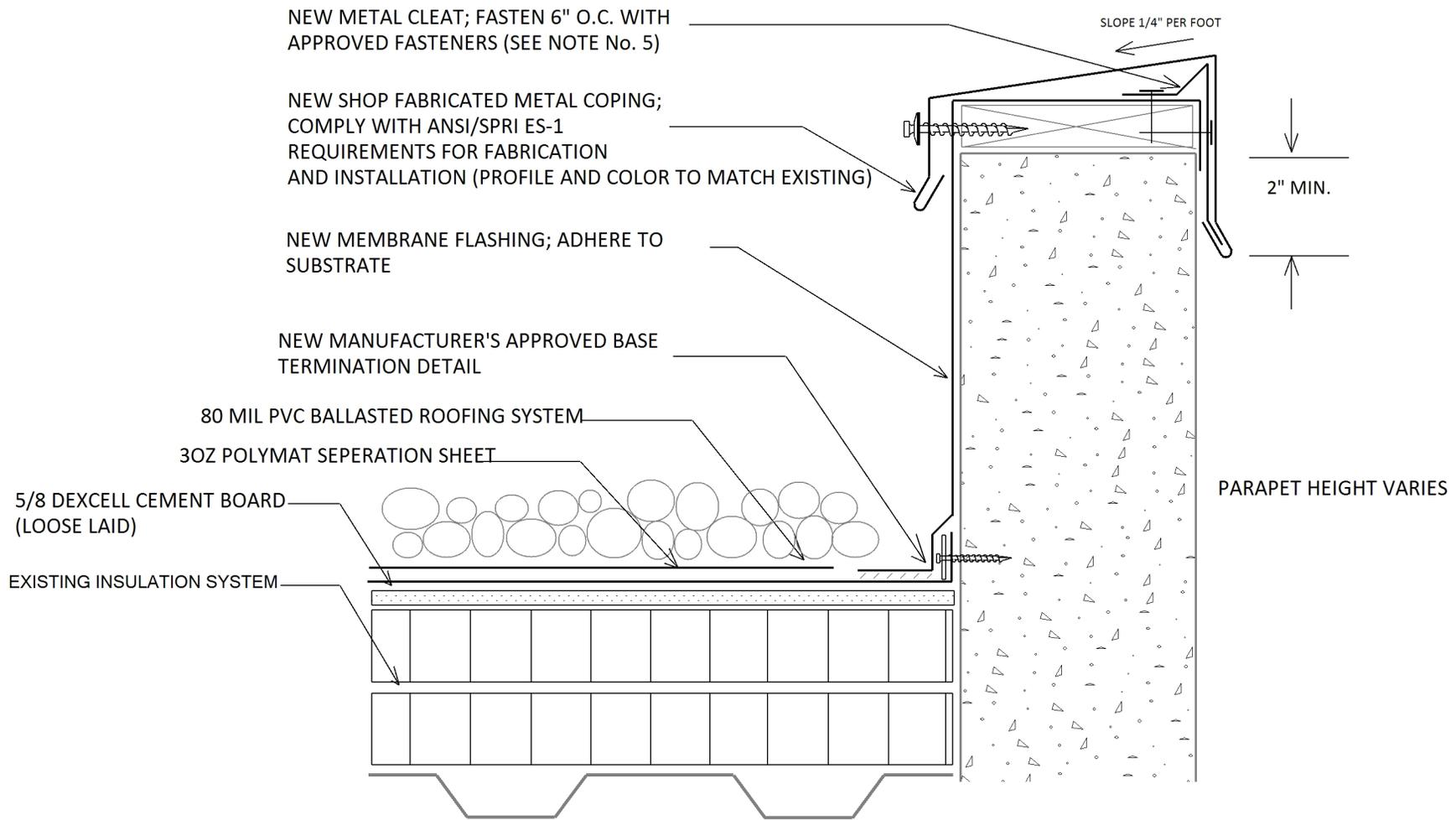
PROJECT NAME: Moorehead Area Public Schools  
 S.G. Reinertsen Elementary  
 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG SHEET SIZE: 8.5x 11 inches

DETAIL No.:

**R-2**

0.50



NEW METAL CLEAT; FASTEN 6" O.C. WITH APPROVED FASTENERS (SEE NOTE No. 5)

NEW SHOP FABRICATED METAL COPING; COMPLY WITH ANSI/SPRI ES-1 REQUIREMENTS FOR FABRICATION AND INSTALLATION (PROFILE AND COLOR TO MATCH EXISTING)

NEW MEMBRANE FLASHING; ADHERE TO SUBSTRATE

NEW MANUFACTURER'S APPROVED BASE TERMINATION DETAIL

80 MIL PVC BALLASTED ROOFING SYSTEM

30Z POLYMAT SEPERATION SHEET

5/8 DEXCELL CEMENT BOARD (LOOSE LAID)

EXISTING INSULATION SYSTEM

SLOPE 1/4" PER FOOT

2" MIN.

PARAPET HEIGHT VARIES

**PERIMETER PARAPET WITH COPING**

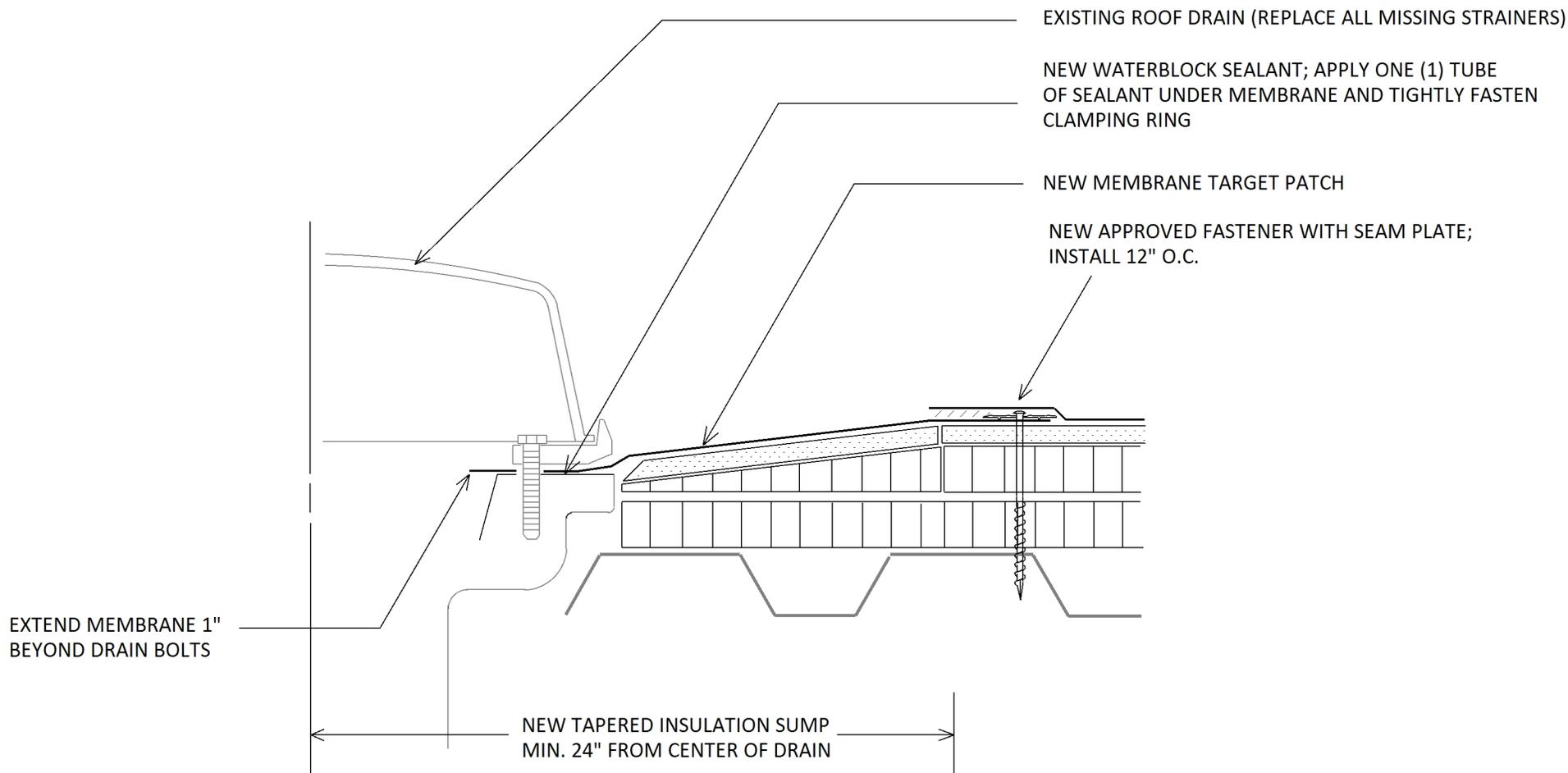
NOT TO SCALE



PROJECT NAME: Moorehead Area Public Schools  
 S.G. Reinertsen Elementary  
 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG. SHEET SIZE: 8.5 X 11 inches

DETAIL No.:  
**R-3**  
 0.50



**ROOF DRAIN**  


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 NOT TO SCALE

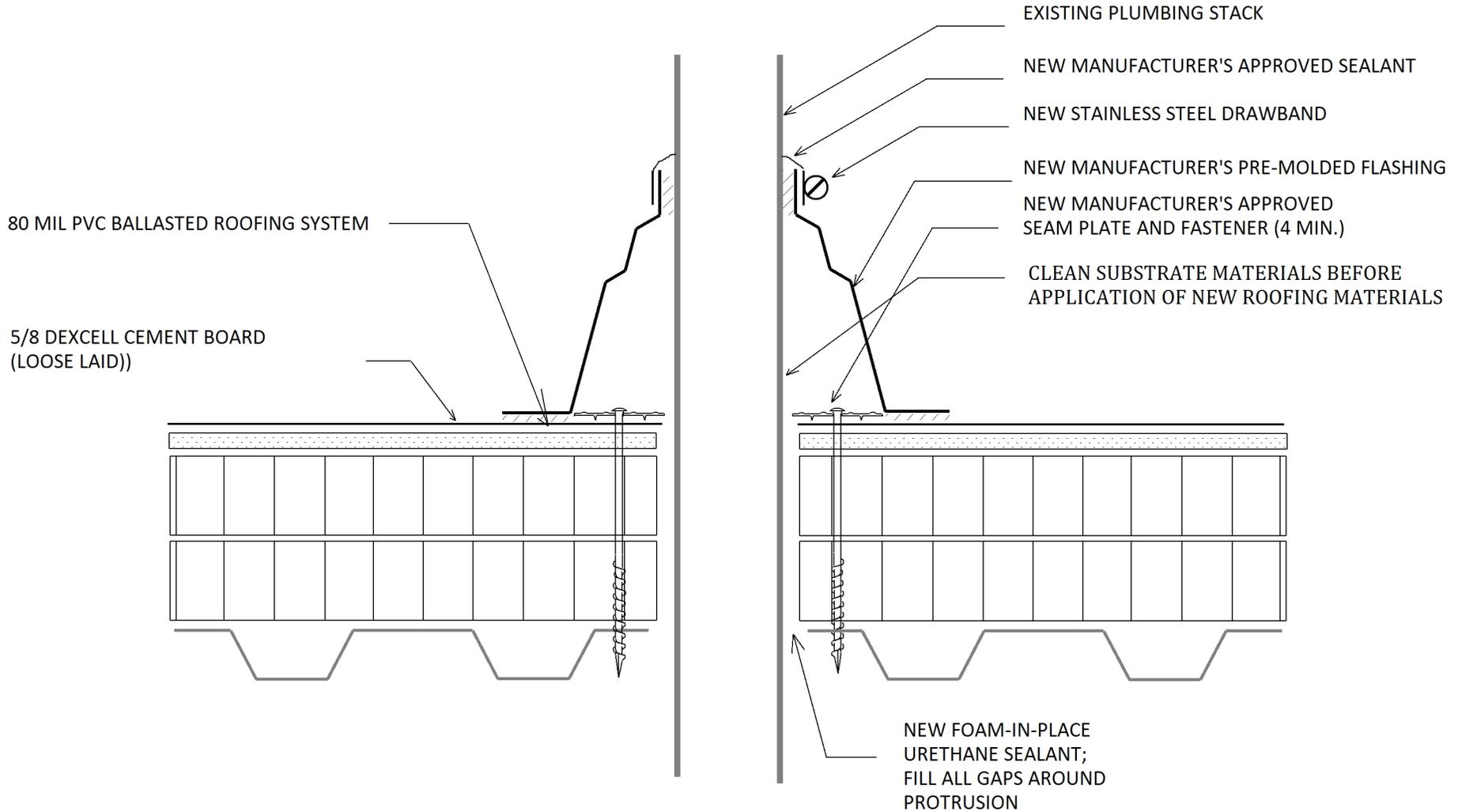


PROJECT NAME: Moorehead Area Public Schools  
 S.G. Reinertsen Elementary  
 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG. SHEET SIZE 8.5 X 11 inches

DETAIL No.:  
**R-4**

0.38



**PLUMBING STACK**

NOT TO SCALE

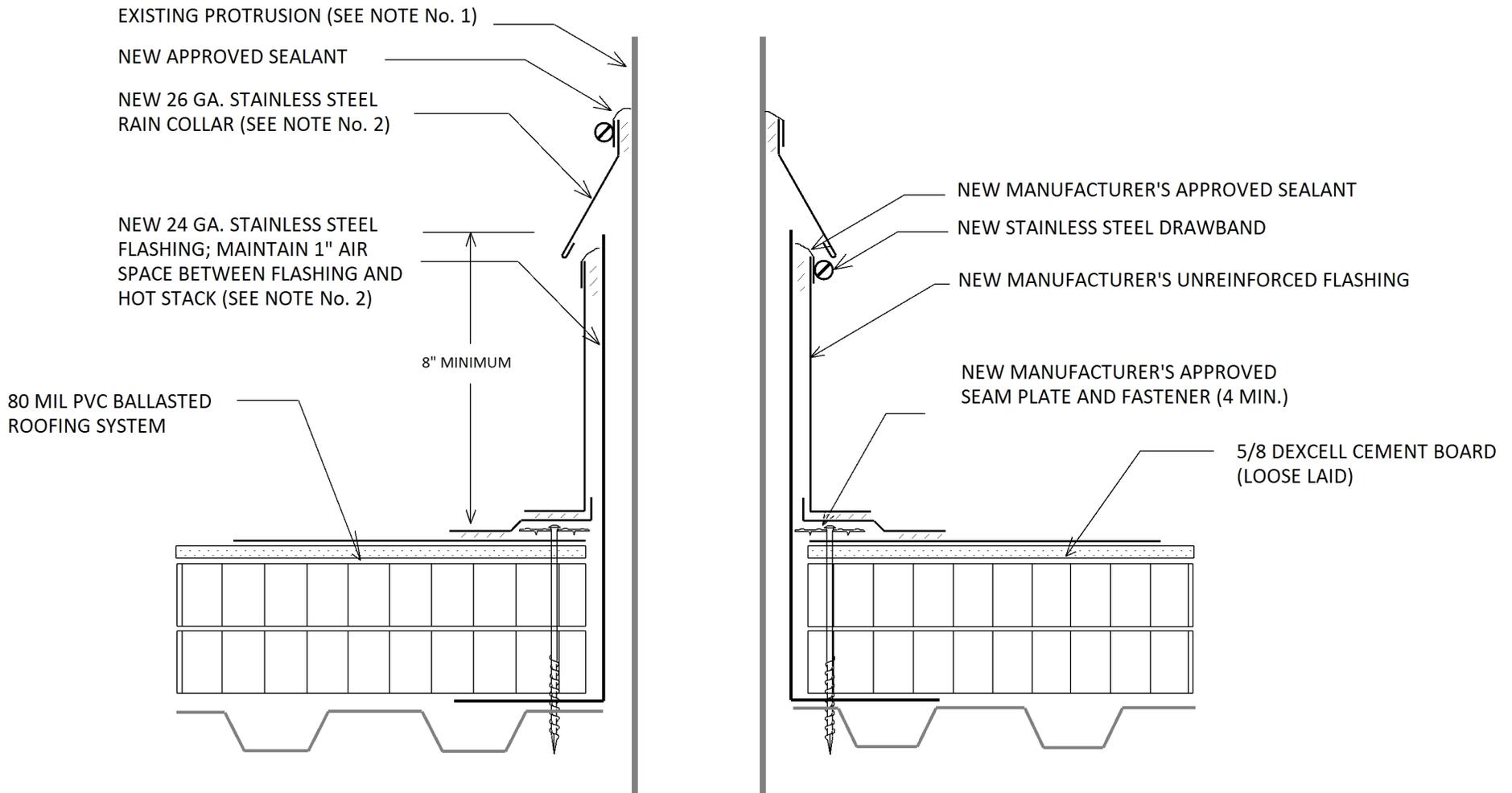


PROJECT NAME: Moorehead Area Public Schools  
 S.G. Reinertsen Elementary  
 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG. SHEET SIZE: 8.5 x 11 inches

DETAIL No.:  
**R-5**

0.38



**ROUND HOT STACK**  
NOT TO SCALE

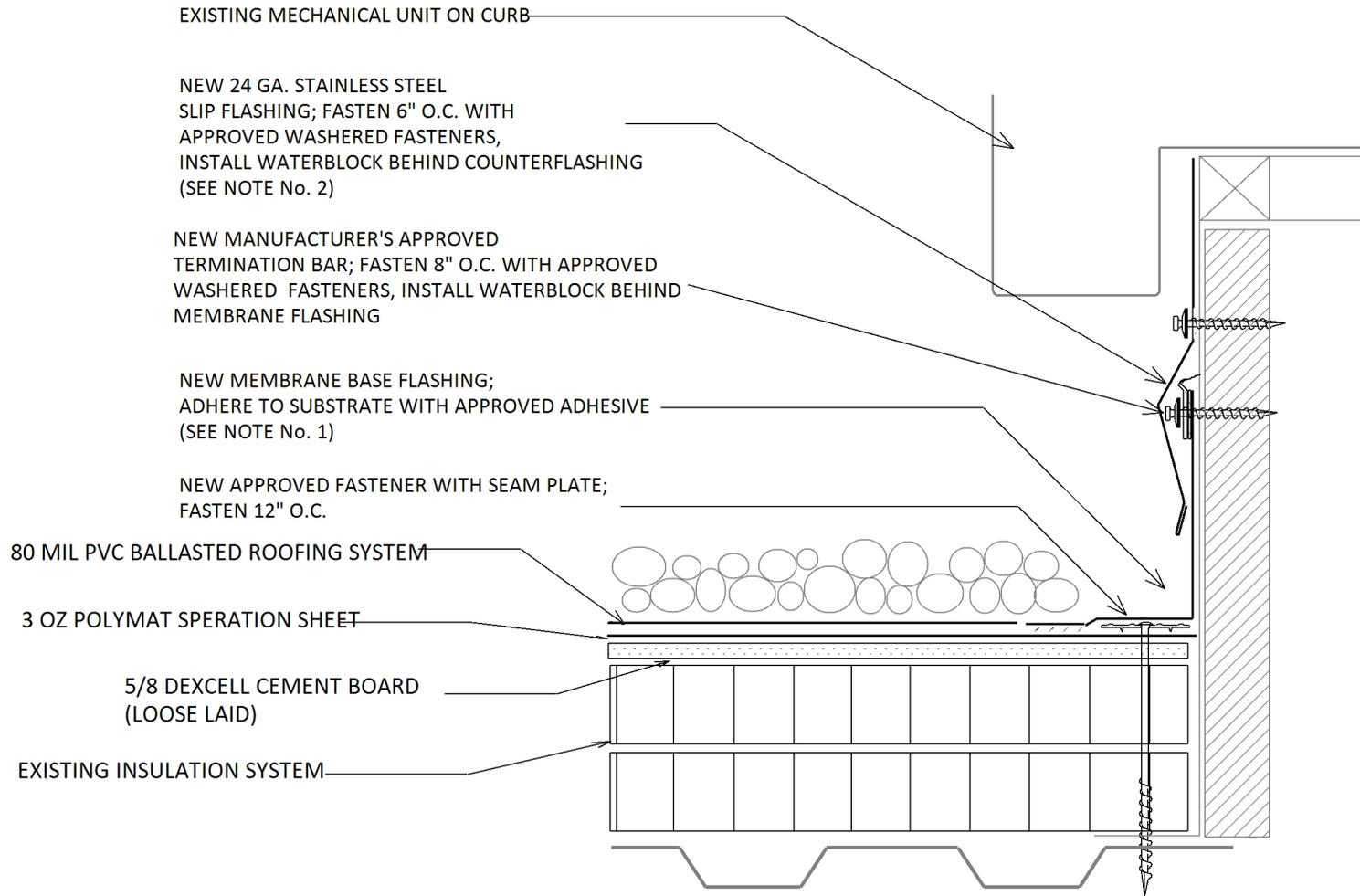
- NOTES:
- 1.) REMOVE EXISTING MATERIALS FROM SUBSTRATE BEFORE INSTALLING NEW ROOFING MATERIALS
  - 2.) SOLDER ALL JOINTS WATERTIGHT



PROJECT NAME: Moorehead Area Public Schools  
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DATE: February 12, 2026  
DRAWN BY: RAM Companies LLC  
PROJECT No.: 260527  
DWG. Sheet Size: 8 x 11 inches

DETAIL No.:  
**R-6**  
0.50



HVAC CURB FLASHING  
NOT TO SCALE

NOTES:

- 1.) CLEAN SUBSTRATE MATERIALS BEFORE APPLICATION OF NEW ROOFING MATERIALS
- 2.) FORM IN 10' LENGTHS MAXIMUM; LAP CORNERS 3/4", POP RIVET AND SOLDER



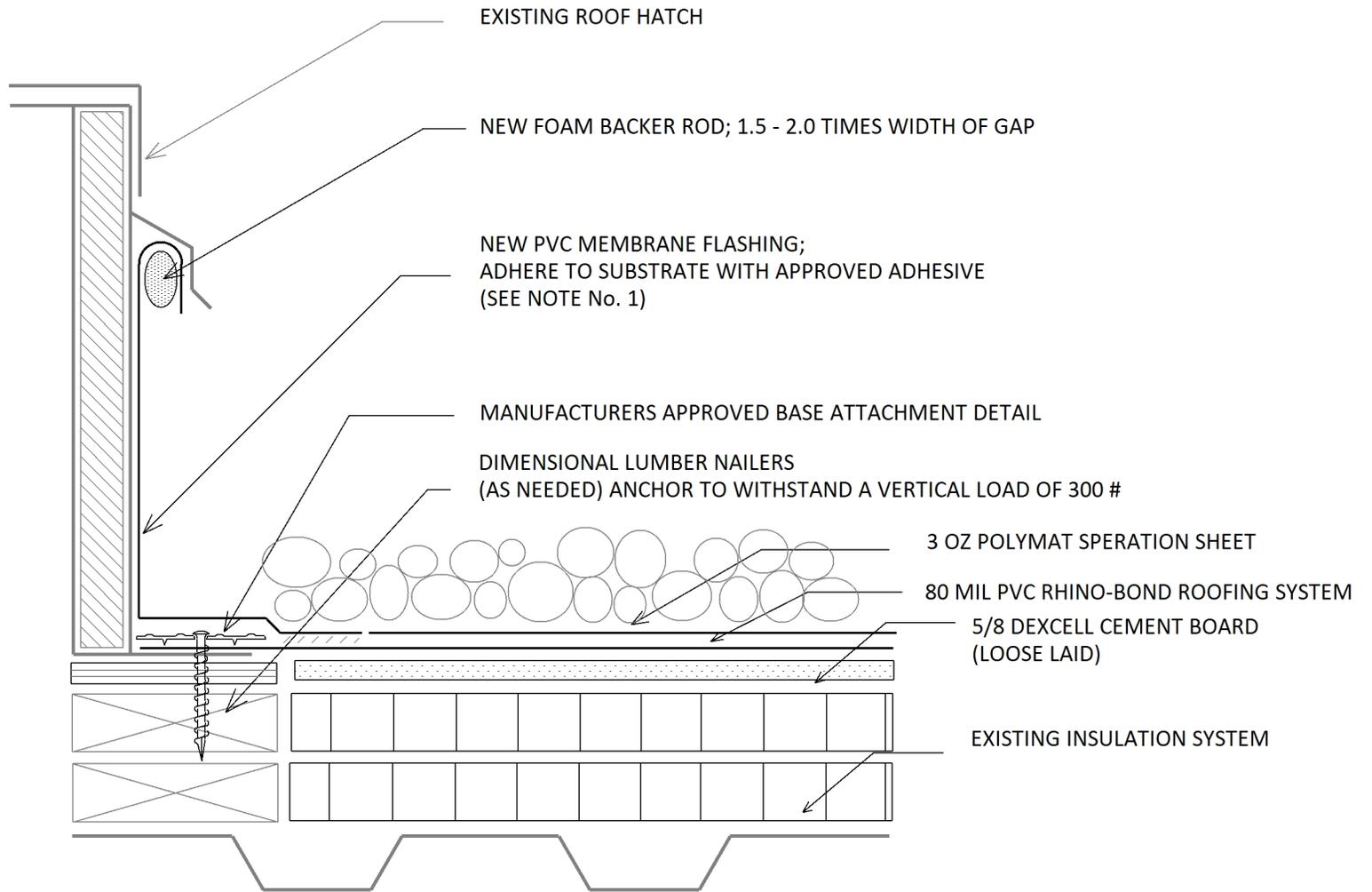
PROJECT NAME: Moorehead Area Public Schools  
S.G. Reinertsen Elementary  
1201 40th Ave S  
Moorehead, MN 56560

DATE: January 9, 2026  
DRAWN BY: RAM Companies LLC  
PROJECT No.: 260527  
DWG. Sheet Size: 8.5 x 11 inches

DETAIL No.:

**R-7**

0.50



EXISTING ROOF HATCH FLASHING

NOT TO SCALE

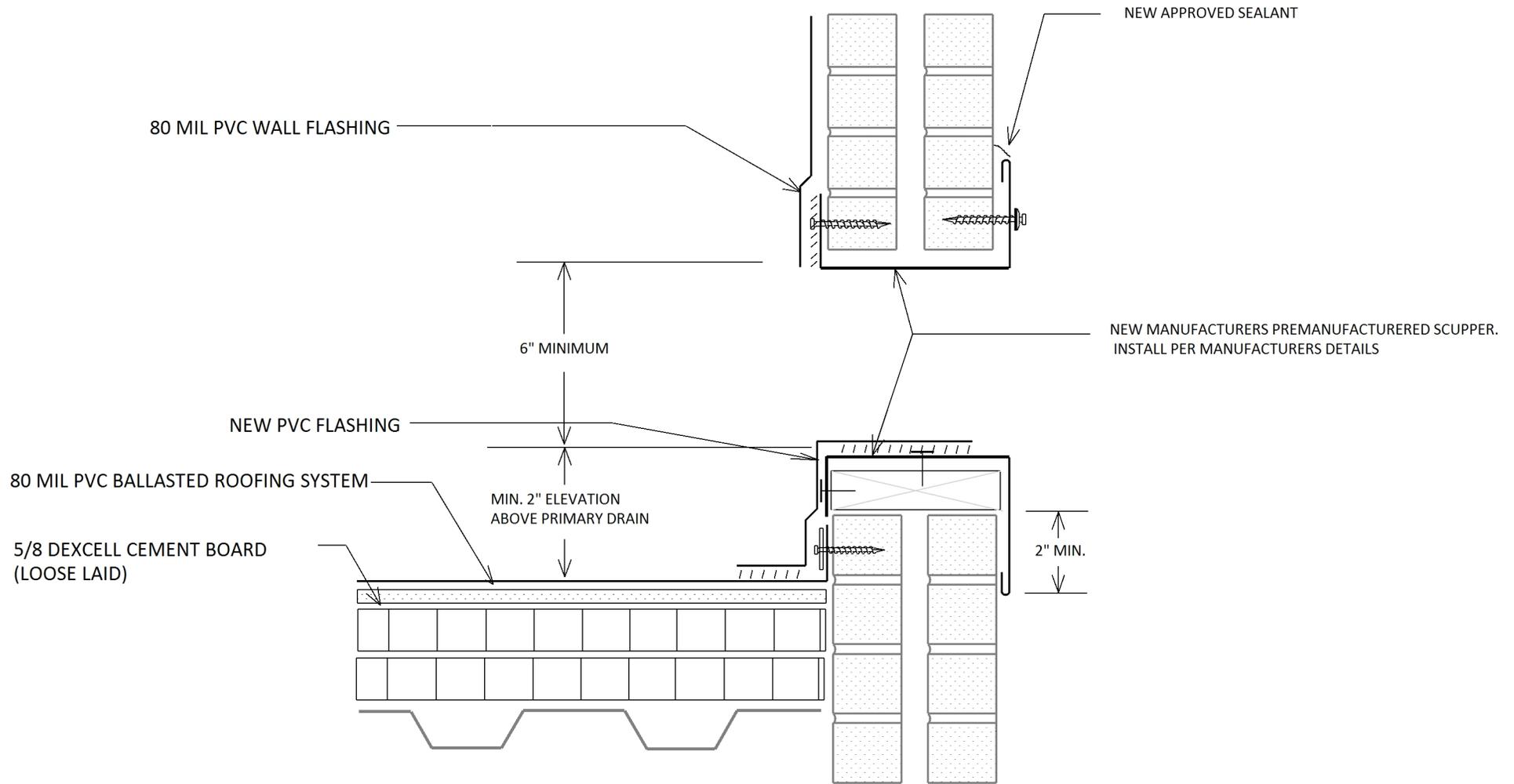


PROJECT NAME: Moorehead Area Public Schools  
S.G. Reinertsen Elementary  
1201 40th Ave S  
Moorehead, MN 56560

DATE: February 12, 2026  
DRAWN BY: RAM Companies LLC  
PROJECT No.: 260527  
DWG SHEET SIZE 8.5 x 11 inches

DETAIL No.:  
**R-8**

0.38



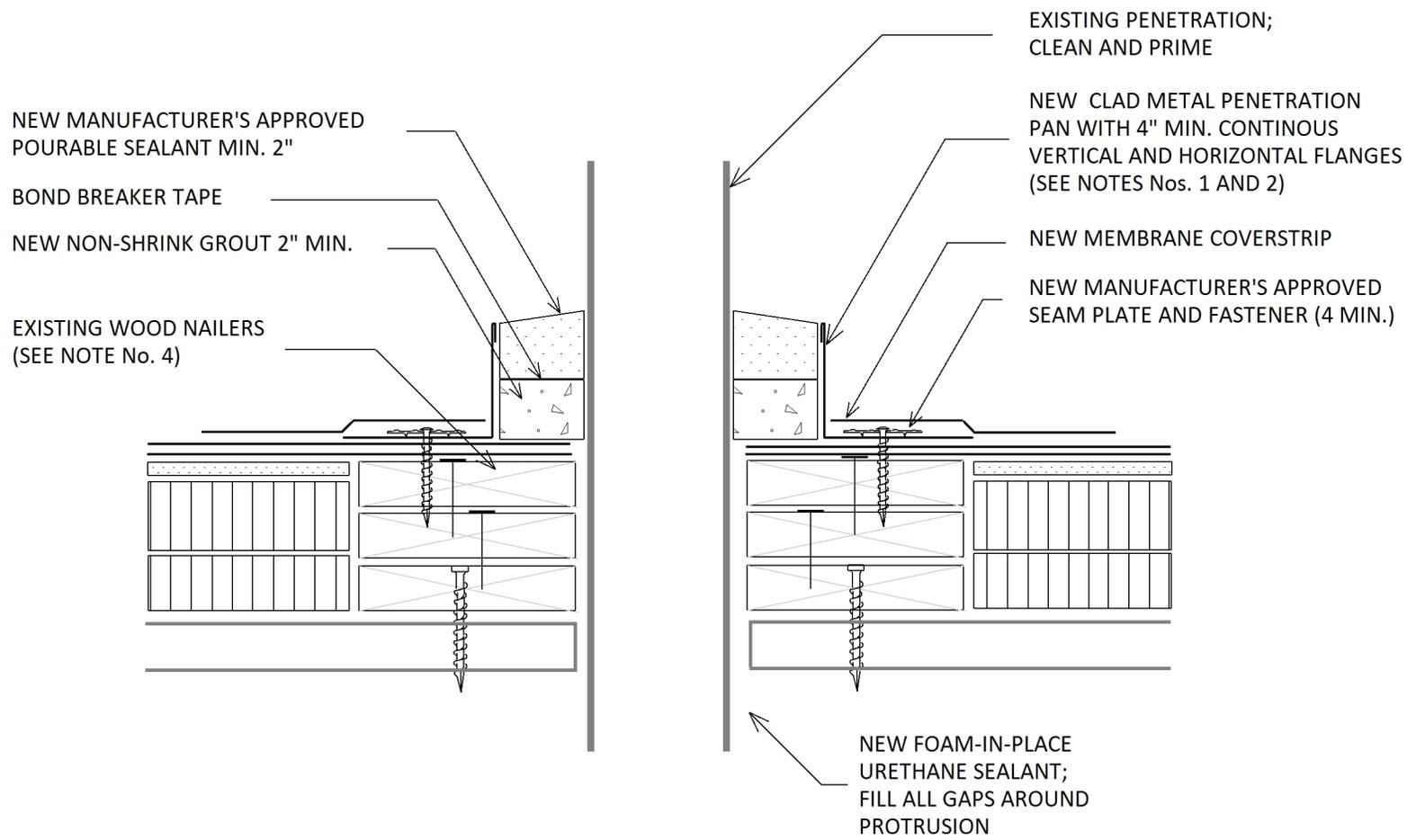
**OVERFLOW THRU-WALL SCUPPER**  
 NOT TO SCALE



PROJECT NAME: Moorehead Area Public Schools  
 S.G. Reinertsen Elementary  
 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG SHEET SIZE = 8.5x 11 inches

DETAIL No.:  
**R-9**  
 0.50



**SEALANT PAN FLASHING**

NOT TO SCALE

NOTES:

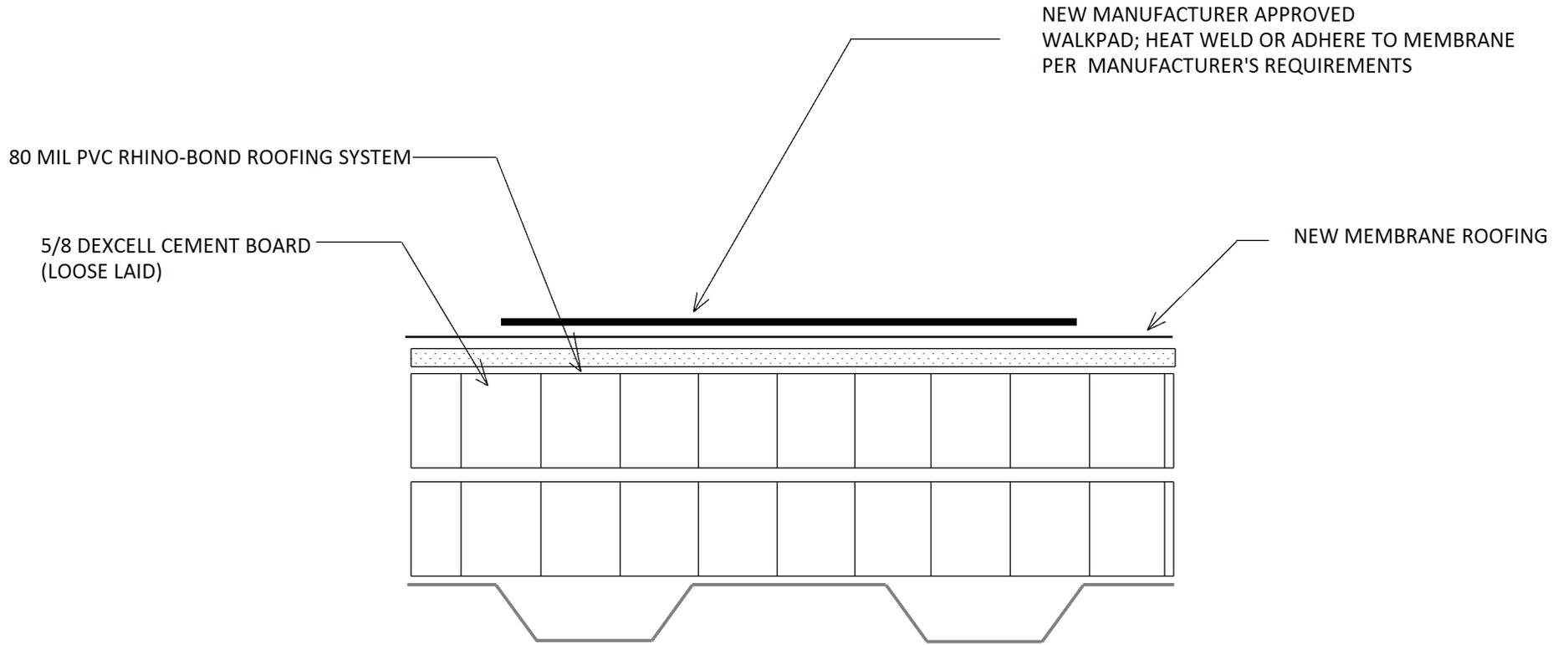
- 1.) SEAL ALL JOINTS WATERTIGHT
- 2.) MANUFACTURER APPROVED MOLDED FLASHING COMPONENTS ARE ACCEPTABLE
- 3.) PROVIDE AND INSTALL NEW 26 GA. STAINLESS STEEL RAIN COLLAR WHEN APPROPRIATE (NOT SHOWN FOR CLARITY)
- 4.) ADD ADDITIONAL NAILERS AS REQUIRED TO LEVEL WITH ADJACENT INSULATION
- 5.) SEE ROOF PLAN FOR FULL ROOF NOTES
- 6.) MANUFACTURER'S APPROVED LIQUID FLASHING DETAIL IS ACCEPTABLE



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 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG SHEET SIZE = 8.5x 11 inches

DETAIL No.:  
**R-10**  
 0.50



**WALKPAD PROFILE**

NOT TO SCALE

NOTES:

- 1.) INSTALL WALKPADS AT ALL ROOF ACCESS POINTS AND MECHANICAL SERVICE POINTS



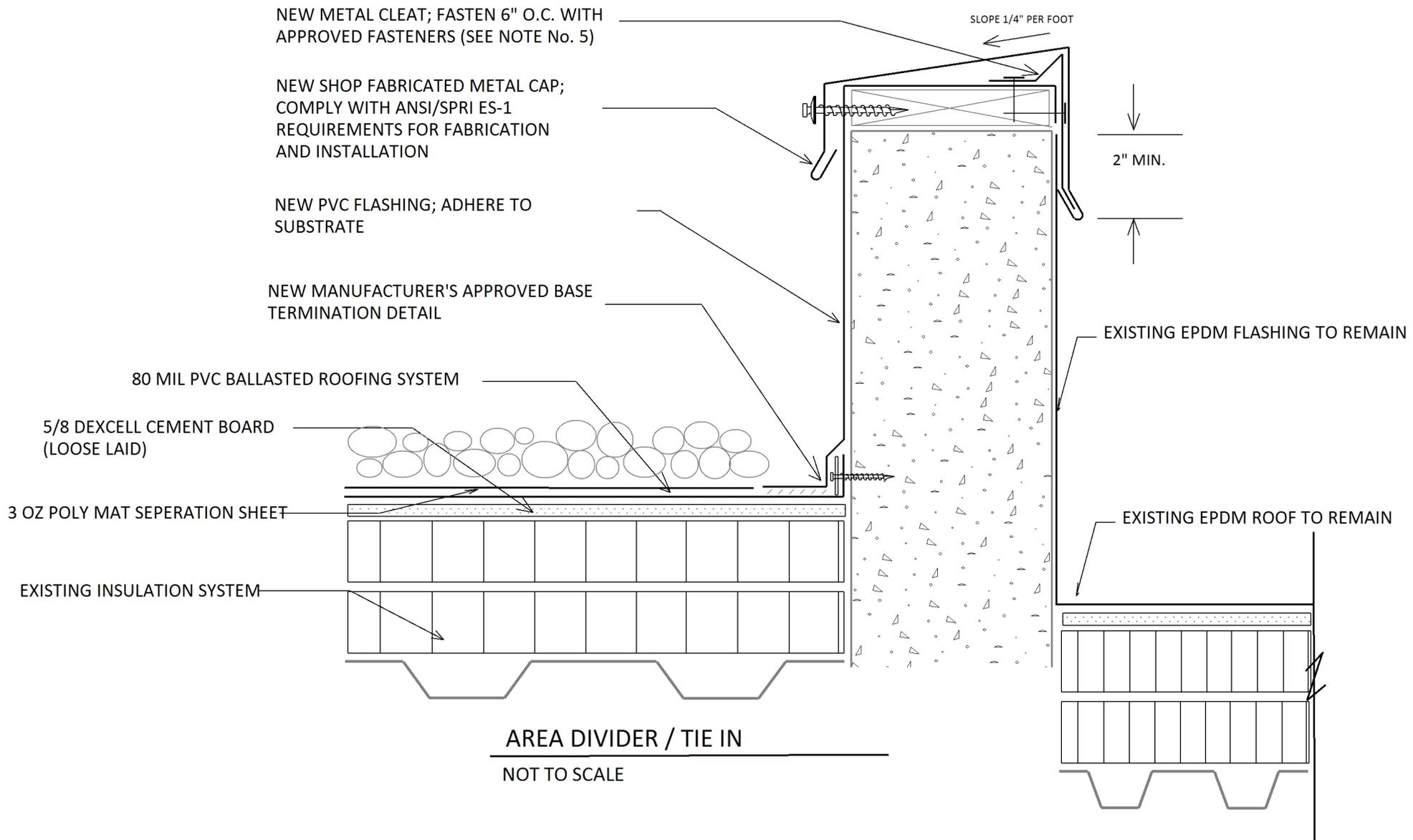
PROJECT NAME: Moorehead Area Public Schools  
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 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG. SHEET SIZE: 8.5 x 11 inches

DETAIL No.:

**R-11**

0.38



PROJECT NAME: Moorehead Area Public Schools  
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 1201 40th Ave S  
 Moorehead, MN 56560

DATE: February 12, 2026  
 DRAWN BY: RAM Companies LLC  
 PROJECT No.: 260527  
 DWG. SHEET SIZE: 8.5 X 11 inches

DETAIL No.:  
**R-12**  
 0.50