ADDENDUM

PROJECT:	Jefferson Elementary School Roof Replacement	NO.:	01
		DATE OF ISSUANCE:	3/11/2025
OWNER:	York School District 1	ENGINEER:	REI Engineers
		REI PROJECT NO:	024CLT-079

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated 1/28/2025 as noted below.

This addendum consists of 2 page(s), the attached added Specification Sections 00 62 33 – Roof Manufacturer's Acknowledgment Form, Section 07 42 13 – Metal Wall Panels, Section 07 72 53 – Snow Guards, the revised Specification Sections 07 41 13 – Metal Roof Panels, Section 13 34 21 – Structural Retrofit Roof Sub-Framing System and the attached revised Contract Drawings dated 3/11/2025.

CHANGES TO BIDDING REQUIREMENTS:

1. Add Section 00 62 33 – Roof Manufacturer's Acknowledgment Form.

2. Pre-Bid Meeting Minutes: the attached Pre-Bid Meeting Minutes dated March 10, 2025, are incorporated into the Contract Documents by reference.

CHANGES TO SPECIFICATIONS:

1. Section 07 41 13 – Metal Roof Panels, replace with the attached, Revision No. 1 Section 07 41 13 – Metal Roof Panels.

2. Add Section 07 42 13 – Metal Wall Panels.

3. Add Section 07 72 53 – Snow Guards.

4. Section 13 34 21 – Structural Retrofit Roof Sub-Framing System, replace with the attached, Revision No. 1 – Section 13 34 21 – Structural Retrofit Roof Sub-Framing System.

CHANGES TO CONTRACT DRAWINGS:

1. Replace Contract Drawings in their entirety, with the attached, Revision No. 1 Contract Drawings dated 3/11/2025.

QUESTIONS/CLARIFICATIONS

1. Spec section 07 41 13 calls for 2-inch batt insulation and plans call for 3-inch? **Utilize 3-inch batt insulation. Specification section modified in attached document.**

2. The roof panel specs call for repair/ replacement of rough carpentry and substrate with unit price/ allowance. This isn't listed on the bid form. **Repair of the substrate is listed on the bid form with Unit Price No. 1.**

3. Can you provide a detail or clarify how the flush soffit will be attached? Possibly an RCP to show stretch outs. **Attached to existing framing, spacing is unknown at this time.**

4. Will the 1000 SF of coating be on the canopies? **This is for general repairs to the existing roof panels in preparation for installation of roof hugger system.**

5. Are background checks for on-site employees required? **Yes.**

PROJECT:	Jefferson Elementary School Roof Replacement	NO.:	01
		DATE OF ISSUANCE:	3/11/2025
OWNER:	York School District 1	ENGINEER:	REI Engineers
		REI PROJECT NO:	024CLT-079

6. Certification of existing structure required? **No.**
7. Is on site roll forming allowed? **Yes, to avoid Detail 6 End Lap which has been removed.**
8. Roof curbs to match panel color? Powder coated or painted? **Yes, powder coated to match panel color.**
9. Are PVC vent pipes painted to match roof color? **No, PVC pipes do not need to match roof color.**
10. Detail if vent pipes hit in a panel rib? Are flat curbs allowed? **Relocate vent pipes to center of metal roof panels.**
11. Will the bidding contractor be required to be the certified manufacturer's installing contractor? **Yes.**
12. Will a section of canopy 1 be allowed to be removed & re-installed for equipment access to main building? **Yes, this will be allowed.**
13. Would there be any consideration for a project duration extension? Extend to 240 days? **No project duration extension at this time.**
14. Will 3" Unfaced insulation be required on Canopies 1 & 2? (Photo 1 -attached) **Yes, insulation is required on the canopies.**
15. Multiple penetrations are not shown on plans. I would assume this would be detail 7. **Yes, that's correct.**
16. Canopy located at the back of Roof Area A1 is not shown on plans. Is this roof canopy required? (See photo 3, 4) **Yes, please see revised XR101-Roof Plan drawing.**
17. Existing wall panels on north elevation of Roof Area E. Will these panels remain? **Please provide new metal wall panels at this location, see details on revised XR502 sheet.**
18. What will be the requirement for bidding with potential price increases on metal? We are seeing prices increases coming due to tariffs. **Any potential price increases shall be incorporated into the Contractors bid, Owner will not be responsible for any price increases following bid opening.**
19. Detail 6 is not shown on the roof plan. Where is this required? **Detail will be removed from drawings.**
20. Detail 8 is not shown on the roof plan. I don't recall seeing this detail onsite. Is this detail required? **Detail will be removed from drawings.**
21. Detail 9 is not shown on the roof plan. I don't recall seeing this detail onsite. Is this detail required? **Detail will be removed from drawings.**
22. Will you require snowguards on Canopies 1 & 2 as well? **Yes.**
23. Do roof areas A3, A2, C2, D2 receive new gutter and downspouts. They currently do not have gutter and downspouts. Do these roof areas get new siding? **No, these roof areas do not receive new gutter and downspouts. Please see revised XR101 – Roof Plan drawing. Yes, they shall receive new panels.**

PROJECT:	Jefferson Elementary School Roof Replacement	NO.:	01
		DATE OF ISSUANCE:	3/11/2025
OWNER:	York School District 1	ENGINEER:	REI Engineers
		REI PROJECT NO:	024CLT-079

24. Please clarify type and thickness of insulation to be included in the new roof assembly as 3" unfaced batt insulation will not meet the R-20 code requirement. Is there an expectation to add insulation to the interior of the building? **3" unfaced batt insulation will be utilized.**

25. Are we required to have safety measures in place at all entrances and pathways around the building for the duration of the project or just in active work areas as we move from section to section? **Just in active work areas.**

26. Schedule to start? Work can be performed while kids are in school? **Yes, work can be performed while students are in school; Contractor to coordinate with schools testing and special events schedule.**

ALL OTHER REQUIREMENTS AND PROVISIONS OF THE BIDDING DOCUMENTS REMAIN UNCHANGED. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID FORM. FAILURE TO DO SO MAY BE CAUSE FOR REJECTION OF THE BID.

END OF ADDENDUM

ENGINEERS

March 10, 2025

York School District 1
Post Office Box 770
York, SC 29745

Attention: Charlie Westbrook
Project Manager

Reference: Pre-Bid Meeting Minutes
Jefferson Elementary School
Roof Replacement
REI Project No. 024CLT-079

Dear Mr. Westbrook:

A Pre-Bid Meeting was held at 10:00 AM on 2/27/2025 at the project site to discuss the details of the above referenced project. Refer to the attached sign in sheet for the attendance. The following points of interest were discussed:

1. Scott Caragher opened the meeting and a sign-in sheet was circulated.
2. A brief introduction of the project was provided.
3. Project Documents including Project Manual and Drawings sent electronically prior to the meeting. If you have not received documents, please email REI's Project Manager to request documents.

Section 00 11 13-Advertisement for Bids

4. Bids shall be received by Owner until 3:00 PM on 3/13/2025 at 1475 E. Liberty Street, York, South Carolina 29745. The bids shall be publicly opened and read.
5. Bidder attendance at this pre-bid meeting was recommended but not mandatory.

Section 00 21 13-Instructions to Bidders

6. Bid Security will be required and shall be submitted with Contractor's bid. Utilize the form contained in the project manual.
7. Performance and Payment Bonds for the Contract Amount will be required. Utilize the forms contained in the project manual.

Section 00 41 13-Bid Form

8. The alternates listed for this project are as follows:
    a. Alternate No. 1: Provide flush seam metal soffit panels at Areas F3 and Canopy 2.
9. One manufacturer for the roof system shall be listed on the Bid Form.
10. A $40,000.00 contingency allowance shall be contained in the Base Bid.
11. The following Quantity Allowances shall be contained in the Base Bid.
    a. Repair 1000 SF of Existing Corroded Metal Roof Panels (Corrosion Degree 1) with Coating.

Relationships | Expertise | Integrity™

1927 JN Pease Place | Suite 201
Charlotte, NC 28262

reiengineers.com
704.596.0331

12. 1 unit price shall be provided and utilized to determine the applicable quantity allowances.
13. Schedule of Completion:
    a. The construction duration (including any alternates accepted) for this project shall be 180 calendar days before Liquid Damages shall be incurred of $500.00 per calendar day.
    b. Time is of the essence. Contractor shall commence work on this project within thirty (30) days following receipt of an Executed Agreement between Owner and Contractor.
    c. Date of commencement will be established in a Notice to Proceed issued to Contractor.
14. Provide all bid enclosures listed on the Bid Form including the following:
    a. Bid Bond

Section 01 11 00-Summary of Work

15. A brief outline of the scope of work was reviewed.
    a. Standing Seam Metal Roof – Roof Areas A-F4:
        i. Prepare existing metal roof system and provide roof hugger system.
        ii. Provide 3" un-faced batt insulation.
        iii. Provide standing seam metal roof panel system along with flashings, trim and accessories.
        iv. Provide snow guard system along eave edge and upslope side of roof penetrations.
        v. Replace sheet metal caps to match new roof system at entrance masonry columns.
        vi. Provide a complete, weathertight, 20-year warrantable roof assembly with 30-year finish warranty.
16. No materials were sampled or tested for asbestos.

Section 01 14 00-Work Restrictions

17. Works hours shall generally be performed during normal business hours. Should the Contractor elect to work on Saturday or Sunday, notification to the Owner and Engineer at least 48 hours in advance shall be required.
18. Coordinate work schedule with School's testing and special events schedule. Contractor may not be allowed on-site during certain testing days/events.

Section 01 40 00-Quality Requirements

19. A full time superintendent is required for the project.

Section 01 77 00-Closeout Procedures

20. A two-year contractor's warranty, asbestos free warranty and a twenty-year roofing manufacturer's warranty shall be required.
21. Contractor shall submit all closeout documents within thirty (30) days from Punch List.

Technical Specifications/Contract Drawings

22. Review as necessary.

Miscellaneous

23. Staging and Material storage areas are as follows:
    a. Staging and material storage areas shall be determined at the Pre-Construction Meeting.
    b. Access to the roof shall be via a Contractor provided extension ladder that shall be taken down every night and secured.

Relationships | Expertise | Integrity™

1927 JN Pease Place | Suite 201
Charlotte, NC 28262

reiengineers.com
704.596.0331

c. The Contractor will provide a portable toilet facility and handwashing station, as required.

24. Bidders wishing to make additional site visits shall contact Owner/REI to coordinate an appointment for additional visits. Please allow 24 hours of advance notice to schedule the site visit. Bidders shall provide an extension ladder for access to the roof. Bidders must check in at the office immediately upon arrival to the facility.
25. All bidding or specification related questions are to be directed to REI Engineers in writing (email) by 5:00 PM on 3/10/2025 in an effort to keep addenda from being issued after 3/11/2025.

Please contact our office if you have any questions or corrections regarding these minutes.

Sincerely,

REI Engineers

Scott Caragher
Project Manager

Enc: Pre-Bid Meeting Sign-in Sheet

cc: Attendees

Relationships | Expertise | Integrity™

1927 JN Pease Place | Suite 201
Charlotte, NC 28262

reiengineers.com
704.596.0331

PRE-BID MEETING SIGN-IN
OWNER: York School District 1
PROJECT: 024CLT-079 Jefferson ES Roof Replacement

Name	Company	Phone No.	Email
Scott Caragher	REI Engineers	980-267-8124	scaragher@reiengineers.com
Rich Britt	REI Engineers	704-215-3019	rbritt@reiengineers.com
Charlie Westbrook	YSD1	803-325-4715	cwestbrook@york.k12.sc.us
JOSEPH LAMACCHIA	NATIONSROOF	704-840-8853	JLAMACCHIA@NATIONSROOF.com
Kyle Winecoff	Tecta	704-506-2217	Kwinecoff@tectaamerica.com
Austin Patterson	Sika/Sarnafil	704-785-662	austinp.integratedproductsgrp.com
Joe Kohaut	Highland Roofing	612-459-0041	jKohaut@highlandroofingcompany.com
CHRS CRIDER	LAFAVES	704-857-1171	CCRIVER@LAFAVESCONST.com
Lin Tucker	ERC	9045253143	l.tucker@interstateroofingco.com
DAN HANNER	DAN ENTERPRISES	443-364-4279	DAN.HANNER@yahoo.com
Darrell Dozier	Achelpohl Roofing	803-345-5007	darrell@achelpohlroofing.com
Oliver Gilbert	Heritage Roofing	434-200-6221	oliver@heritageroofingco.com
mike Brooks?	Davco Roofing	704-309-1665	mikep@davcoroofing.com
Anthony Muffler	Owens Roofing	919-821-0082	Anthony@owensroofinginc.com
Bradley Gould	CMP	764-818-6788	bgould@cmpmetalsystems.com
Jason Wilson	Rike Roofing	704-604-5352	estimator5@rikeroofing.com

REI ENGINEERS

SECTION 00 62 33

ROOF MANUFACTURER'S ACKNOWLEDGMENT

PART 1 GENERAL

1.1 FROM:

A. Roofing Contractor: _____

B. Address: _____

C. Phone: _____ Email: _____

1.2 FOR:

A. Owner: York School District 1

B. Project: Jefferson Elementary School Metal Roof Re-Cover

C. REI Project No.: 024CLT-079

D. Address: 1543 Chester Hwy. York, South Carolina 29745

1.3 ACKNOWLEGEMENT

A. This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated 01-28-2025, the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures and specified external fire resistance rating outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions or exclusions to the Engineer through the contractor as otherwise outlined in the Advertisement or Invitation for Bids, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

1.4 EXECUTED BY:

A. Manufacturer's Company Name: _____

B. Designated Reviewer Name and Title: _____

C. Signature: _____ Date: _____

END OF SECTION

SECTION 07 41 13

REVISION NO. 1 - METAL ROOF PANELS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide standing seam metal roof panel system.

1.2 RELATED SECTIONS

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

1. Section 07 01 50 - Preparation for Reroofing

2. Section 13 34 21 - Structural Retrofit Roof Sub-framing System

1.3 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; 2023, with Errata (2024).

B. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2023.

C. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2019.

D. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2019, with Editorial Revision (2023).

E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.

F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

G. ASTM D523 - Standard Test Method for Specular Gloss; 2014 (Reapproved 2018).

H. ASTM D822/D822M - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings; 2013 (Reapproved 2018).

I. ASTM D968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive; 2022.

J. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems; 2020.

K. ASTM D2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates; 2023.

L. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity; 2015 (Reapproved 2020).

M. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2020a.

N. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; 1995 (Reapproved 2018).

O. ASTM E1680 - Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems; 2016 (Reapproved 2022).

P. FM 4470 - Examination Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction; 2022.

Q. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

R. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.

S. UL 1897 - Uplift Tests for Roof-Covering Systems; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide metal roof panel assemblies that comply with performance requirements specified as determined by testing manufacturers' standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.

B. Submit Manufacturer's sealed engineering calculations, test reports and/or other applicable data certifying the proposed standing seam roofing system meets or exceeds the design criteria listed below.

1. Air Infiltration: Tested in accordance with ASTM E1680 when tested with a 6.24 PSF pressure differential.

2. Water Penetration: Meet or exceed ASTM E1646 when tested with a 6.24 psf pressure differential with no uncontrollable water leakage when five gallons per hour of water is sprayed per square foot of roof area.

3. Wind Design: Provide an approved roof assembly tested in accordance with FM 4470, UL 580 or UL 1897 to resist the design wind uplift pressures required by the Contract Drawings.

4. Thermal Movements: Provide metal roof panel assemblies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

a. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

5. Structural Panel Deflection: Space framing members and clips supporting the standing seam roofing system to ensure a maximum deflection under applied live load of 20 psf not to exceed L/240 of the span.

6. Fire Testing: Meet ASTM E108 and UL 790 Class 1A.

1.5 SUBMITTALS

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

B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

C. Product Test Reports: Submit testing reports for the specified performance requirements. Submit the appropriate documentation to prove South Carolina Building Code design compliance.

D. Shop Drawings:

1. Submit shop drawings and erection details, approved by the Standing Seam Metal Roofing Manufacturer, and sealed by a structural engineer licensed in the State of the project. Do not proceed with work until Manufacturer Approved drawings have been submitted for review and acceptance.

2. Show methods of erection, framing details, roof and wall panel layout, sections and details, anticipated loads, clip spacing for each wind area or zone of the roofs, flashings, sealants, interfaces with materials not supplied and proposed identification of component parts and their finishes.

E. Engineering Calculations: Provide sealed manufacturer's engineering calculations demonstrating compliance with the performance requirements of this specification and applicable Codes.

1. Provide written certification, from an independent engineer, licensed in the State, indicating that the structure is capable of supporting additional loads imposed by the retrofit framing system. Provide stamped and sealed plans, by an engineer, licensed in the State, indicating the design for the retrofit metal roof assembly as compliant with specified design loads.

2. Provide manufacturer's calculations demonstrating holding strength of fasteners, to structural framing, in accordance with submitted test data, provided by fastener manufacturer, based on length of embedment and properties of materials.

F. Standard Colors: Submit the manufacturers' standard colors for selection by the Owner.

G. Manufacturer's Qualifications: Requirements for certification noted in Manufacturer's Qualifications under Quality Assurance and AISC (MAN) standards.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain metals panel through once source from a single manufacturer.

B. Manufacturer's Qualifications: Meet and provide written certification stating:

1. Regularly engaged in the fabrication of metal standing seam roof systems for at least 10 years, regardless of name change.

2. Maintains a certified installer program for its products and maintains up-to-date authorized roofing contractor list.

3. Written warranty covering durability, color and weathertightness of its roof system and include the insulation curbs and flashings from the roofing manufacturer.

4. Reviewed the project's environmental exposure for proximity to coastal environments, has provided the interpretation that the proximity to the salt and/or brackish water environments is acceptable, and will not make exclusions to the specified Guarantee based solely on the proximity to these exposures.

5. Provide the technical data, shop drawings and calculations specified herein.

6. Provide in-house inspection services.

7. Installer training program including the following:

    a. Experienced instructors with experience in the application of the Metal Roofing System.

    b. A formal syllabus for the classroom and hands-on training.

    c. Classroom instruction with review and thorough understanding of the specific product's technical manual.

    d. Hands-on mock-up instruction with a review and thorough understanding of the specific product's details.

    e. Required to take written and/or oral examinations to pass certification.

    f. Requirement for re-certification of training at a minimum of every five (5) years.

8. Certified the Contractor's personnel and has approved the Installer for the specified Metal Roofing System for the specified Guarantee.

9. Manufacturer's Inspection: The manufacturer's on-site technical representative employed by the manufacturer as a Technical Representative. Provide a minimum of one (1) on-site visit per month; attend the project start-up meeting, on-site for first two (2) start-up days, including observation of seaming of the first three (3) metal roof panels, and at pre-final or final inspection of the metal roofing system installation. Notify Engineer a minimum of forty-eight (48) hours prior to manufacturer's inspections. Copy Engineer on inspection report noting deficiencies within seven (7) days after each site visit.

10. Upon completion of the work and prior to final payment, conduct a final inspection in presence of the Contractor and Engineer. Record deficiencies in the work and document completed repairs. Final payment will not be certified until the manufacturer has given his certification/approval of the work and the required Guarantee has been reviewed by the Engineer.

C. Contractor's Qualifications:

1. Approved installer, certified by the Manufacturer before the beginning of the installation of the standing seam metal roof system.

2. On-site Foreman (provide name and date of training) is the person having received certification and training by the Manufacturer and has received specific training in the proper installation of the selected standing seam metal roof system.

3. The Manufacturer trained and certified Foreman present to supervise work during installation of standing seam roofing and associated materials.

4. No viable claims pending regarding negligent acts or defective workmanship on previously performed or current roofing projects involving the specified standing seam metal roofing system.

5. Provide a list of five projects listing the architect/engineers and/or building owners including individuals' names and telephone numbers for five standing seam metal roofing projects that have been in service for a minimum of two years.

6. Ensure the manufacturer provides the specified on-site technical visits and agrees to compensate the manufacturer as necessary for additional on-site visits required or deemed necessary by the Engineer to resolve deficiencies in the Contractor's workmanship.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Coordinate delivery with Engineer/Owner and occupants on site.

2. Deliver material in the manufacturer's original sealed and labeled shrouds and in quantities to allow continuity application.

3. Ensure metal roof system is delivered to the job site properly packaged to provide protection against transportation damage.

4. Inspect materials delivered to the project site. Reject materials damaged during shipping and do not install on the project.

B. Handling:

1. Exercise extreme care in unloading, storing and erecting metal roof system to prevent bending, warping, twisting and surface damage.

2. Handle materials to prevent scratches, dents, bending, twisting, warping and other damages.

3. Remove significantly scratched materials, and materials scratched through to the base steel from the project and replaced.

4. Remove dented, bent or damaged materials resulting in improper fit and detraction from intended aesthetics from the project and replaced.

C. Storage:

1. Store materials out of direct exposure to the elements or pallets or dunnage at least 4 inches above ground level. Place non-sweating tarpaulins to prevent moisture contamination. Factory shrouds and visqueen are not acceptable.

2. Prevent rain from entering bundle by covering with tarpaulin, making provision for air circulation between draped edges of tarpaulin and the ground. Prolonged Storage of sheets in a bundle is not recommended.

3. Protect materials from staining, dirt, dust or water marks. Clean stained materials before installation or replace.

4. Comply with fire prevention requirements for the storage of materials. Locate combustible storage sufficiently away from buildings and non-building structures to eliminate fire exposures. Protect storage of combustible insulation materials from open flame and fire exposures. Control project related ignition sources.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit assembly of metal roof panels according to manufacturers' written instructions and warranty requirements.

B. Field Measurements: Verify locations of roof framing and roof opening dimensions by field measurements before metal roof panel fabrication and indicate measurements on Shop Drawings. Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating metal roof panels without field measurements or allow for field-trimming of panels. Coordinate roof construction to ensure building dimensions, locations of structural members, and openings correspond to established dimensions.

1.9 WARRANTY

A. Provide Manufacturer's Warranty to the Owner upon completion of the project.

1. Weathertight Warranty: Submit a written warranty executed by Manufacturer agreeing to repair or replace metal roof panel assembly that fails to remain weathertight within the specified warranty period.

a. Warranty Period: 20 years from date of Substantial Completion.

b. Prorated Conditions: None.

c. Limitations of liability: No Dollar Limit (NDL)

d. Include weather tight performance of curbs, equipment supports, pipe portals and provided as part of this work.

e. Do not include "hold harmless" clause, nor limit liability of Contractor.

f. Warranty is subject to laws of South Carolina.

g. Venue to settle disputes is county of the project location.

h. Coating systems are not an approved warranty repair.

i. The following exclusions are not acceptable in the warranty terms, conditions and/or limitations:

1) If a Manufacturer Certified Installer was not present continuously during the installation of the Manufacturer's roof system.

2) Failure by the Roofing Contractor to correct deficiencies listed in the Manufacturer inspection reports.

3) If roof leaks are due to ventilators or light transmitting panels.

4) Failure to use long-life fasteners in exposed applications.

j. Include insulation, sub-framing, purlins, clips, fasteners provided as part of this work.

k. Warranty issuer must be the fabricator of the panels, not just the manufacturer of the equipment.

2. Finish Warranty: Provide manufacturer's written panel finish warranty against deterioration of factory applied finishes.

a. Warranty Period: Minimum period of thirty (30) years from date of Substantial Completion.

b. Prorated Conditions: None.

c. Limitations of liability: Not less than value of material and labor to replace.

d. Include weather tight performance of curbs, equipment supports, pipe portals and provided as part of this work.

e. Do not include "hold harmless" clause, nor limit liability of Contractor.

f. Warranty is subject to laws of South Carolina.

g. Venue to settle disputes is county of the project location.

h. Coating systems are not an approved warranty repair.

3. Contractor's Warranty:

a. Two Year Warranty: Manufacturer's Representative and Contractor's Representative will attend post construction field inspection no earlier than one month prior to the expiration date of the Contractor's Warranty. Submit a written report within seven (7) days of the site visit to the Engineer listing observations, conditions and recommended repairs or remedial action.

PART 2 PRODUCTS

2.1 MATERIALS

A. Standing Seam Metal Roof Panels:

1. Factory formed; no job formed panels allowed. Contractor cannot be the roll formed.

2. 16 inch wide, striated panel, nominal 2 inch high standing seam rib utilizing male and female rib configurations with factory applied hot-melt mastic or butyl sealant in female rib. Standing seam formed with the Manufacturer's electric seaming tool to produce a 90 degree rolled seam.

    a. Construction Metal Products (CMP) Series 2500

    b. MBCI BattenLok HS

    c. McElroy Metal Maxima 2"

    d. Metal Roofing Systems (MRS) System 2500

B. Roof Panel Clips:

1. Standard Clip: UL Rated, sliding 22-gauge galvanized steel hook in combination with a double fastened 16-gauge galvanized steel base, both at Fy (min) = 33 ksi. Shop installed hot-melt butyl sealant on clip hook for continuity of seal at clip locations. Secure with fasteners in accordance with manufacturer's requirements for substrate

C. Base Material:

1. Galvalume Panels: AZ50 Galvalume coated steel, meeting ASTM A792/A792M, minimum 24 ga., maximum 22 ga. where required for specified wind uplift resistance.

D. Metal Finish:

1. Manufacturer's smooth finish, pre-finished color coatings consisting of 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer on the finish side, with primer and a wash coat on the reverse in accordance with AAMA 2605 and ASTM D1005.

2. Color of finish for panels and associated trim selected by Owner from Manufacturer's standard color chart.

3. Meet or exceed the following:

    a. Abrasion Resistance: Pass 67 liters of falling sand per mil thickness per ASTM D968.

    b. Salt Spray Resistance: Samples diagonally scored and subjected to 5% at 95 degrees F, neutral salt spray per ASTM B117, then taped with Scotch #610 cellophane tape: 1000 hours coated steel, no blistering and no loss of adhesion greater than 1/8 from score line.

    c. Chemical Resistance: No effect after 24 hour exposure of a 10% solution of hydrochloric acid, and 18-hour exposure to 20% sulfuric acid, per ASTM D1308, including exposure to 10% muriatic acid and nitric acid fumes.

d. Humidity Resistance: No blistering, cracking, peeling, loss of gloss or softening of the finish after 3000 hours aluminum 1000 hours coated steel, of exposure at 100% humidity at 95 degrees F, per Federal Test Method Standard 141, Method 6201 or ASTM D2247.

e. Chalking Resistance: No chalking greater than #8 rating, per ASTM D659 test procedure after a 3000-hour weatherometer test.

f. Color Change: Do not exceed 5 NBS units for finish coat color change per ASTM D822/D822M, ASTM G-23, and ASTM D2244 test procedure after 3000-hour weatherometer test.

g. Specular Gloss: As determined per ASTM D523 at a glossmeter angle of 60 degrees. 35 percent +/-5 specular reflectance.

E. Fasteners:

1. Fasteners associated with the roofing installation supplied by, and approved by, the metal roofing manufacturer.

a. Fastener length and threads and drill point as required for the metal and substrates being joined. Refer to fastener manufacturer and/or roofing manufacturer published literature. Indicate type of fastener on shop drawings.

b. Corrosion resistant, self-tapping/self-drilling fasteners, bolts, nuts, self-locking rivets and other suitable designed to withstand specified design loads.

c. Provide factory applied coating on the exposed fastener head and washer to match metal roof system color.

d. Provide neoprene-backed washers for exposed fasteners.

e. Position and space exposed fasteners in a true vertical and horizontal alignment. Use proper torque settings to obtain controlled uniform compression for a positive seal without rupturing the neoprene washer.

2. Exposed Fasteners:

a. Metal to sheet metal: 1/4-14 x 7/8 inch long life fastener, corrosion resistant, self-drilling point, self-tapping, stainless steel 5/16" HWH with EPDM sealing washer; factory painted head and washer to match adjacent metal color.

b. Metal to light gauge steel: #12-14 x 1-1/4 inch long life fastener, corrosion resistant, self-drilling point, self-tapping, stainless steel 5/16" HWH with EPDM sealing washer; factory painted head and washer to match adjacent metal color.

3. Concealed Fasteners:

a. Metal to light gauge steel: #12-14 x 1-1/4 inch DP3 corrosion resistant low-profile pancake head of length as required for three threads to penetrate steel substrate.

F. Thermal Spacer: 3/8 inch thick by 3 inch wide polystyrene block installed along tops of Zee purlins below metal roof panels.

G. Unfaced Batt Insulation: 3 inch blanket conforming to ASTM C665, Type ll, Class A or Type lll, Class A. Thickness to provide a minimum "R" value of 12 when tested in accordance with ASTM C177 Accepted Manufacturers:

1. Johns Manville

2. Certainteed

3. Owens Corning

4. GAF

H. Accessories: Manufactured, supplied and/or otherwise approved by the standing seam roofing Manufacturer.

I. Sheet Metal Flashings, Closures and Trim:

1. Provide sheet metal flashings, closures and trim fabricated from the specified pre-finished metal of the same gauge, finish and color as the roof panels.

a. Zee Closure

b. Sidewall Flashing

c. Receiver Flashing

d. Counterflashing

e. Fascia Cover

f. Rake Flashing

g. Eave Closure

h. Gutter

i. Downspouts

j. Ridge Cap

k. Hip Cap

l. Valley Flashing

2. Provide sheet metal cleats and attachment components of the same base material, one gauge thicker than the flashing or trim being secured:

a. Continuous Cleat

b. Valley Cleat

3. Gutter and downspout attachment components:

a. Provide air dried kynar paint or powder coat to match sheet metal finish color. Provide certification delivered to site with materials indicating method of finish

1) Panel Supported Gutter:

(a) Gutter Top Hanger: 16 gauge x 2 inches

(b) Gutter Bottom Hanger: 12 gauge x 2 inches

2) Downspout Hangers: 1/16 inch x 1 inch

J. Sealants:

1. Polyurethane Sealant: One-component elastomeric gun grade polyurethane sealant conforming to ASTM C920, Type S, Grade NS, Class 25, and use NT, M, A, G, or O as required by substrate conditions. Color to match adjacent materials.

2. Silicone Sealant: One-component, non-sag, neutral cure, low-modulus, UV resistant, high performance silicone sealant. Meet ASTM C920, Type S, Grade NS, Class 100, Use M, G, A or O. Color to match adjacent materials. Utilize where exposed.

3. Sealant Tape: 3/16-inch x 7/8-inch tri-bead, non-skinning butyl sealant tape. Utilize 2-1/2-inch wide by 3/16-inch thick triple-bead, non-skinning butyl sealant tape where indicated in Contract Drawings or required by metal roof panel manufacturer.

4. Butyl Sealant: Gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant. Utilized where concealed between sheet metal sections, laps, etc.

K. Roof Curbs:

1. Manufacturers:

a. LM Curbs

b. KCC Manufacturing

c. Approved/Recommended by Standing Seam Roofing Manufacturer, compatible with standing seam roof and seam profile, and accepted by Engineer.

2. Fabrication:

a. Continuous welded connections to conform to standing seams for watertight fit, meeting specified requirements herein.

b. Fabricated of structural quality aluminum, minimum 0.080-inch-thick for mechanical equipment up to 1000 lbs., and 0.125-inch-thick for mechanical equipment between 1000 lbs. and 2000 lbs.

c. Factory primed and factory finished painted to match roof panels or clad with sheet metal to match the color of the metal roof panels.

d. Integral base plates and water diverter crickets. The upper flange of the curb minimum of 18 inches above the water diverter to allow for 6 inches of free area after the panel is lapped over the flange on the high side.

e. Designed to install under metal roof system on the high side, over metal roof system on the low side and seamed into roof panels along sides.

f. Minimum height of prefabricated curb 8 inches above the finished metal roof system.

g. Constructed to match the slope of the roof and provide a level top surface for mounting equipment.

h. Curb flanges constructed to match the configuration of the metal roof panels and seams.

i. Provide structural support necessary for the equipment and curb and allow for thermal movement of the curb with the roofing system.

j. Submit roof curb manufacturer's shop drawings including curb and framing to metal roof system manufacturer for review prior to fabrication.

k. Ensure standing seam metal roof system Manufacturer reviews and approves roof curb manufacturer's shop drawings for compatibility with metal roof system.

L. Prefabricated Roof Jacks:

1. Acceptable Manufacturers:

a. SFS - Intech

b. ITW Buildex

c. Approved/Recommended by Standing Seam Roofing Manufacturer, compatible with standing seam metal roofing system, and accepted by Engineer to meet specified requirements herein.

2. One-piece EPDM molded rubber boot having a serviceable temperature range of -65°F to 212°F for standard penetrations, and silicone molded rubber boot having a serviceable temperature range of -100°F to 437°F for high temperature applications

3. Pipe flashings resistant to ozone and ultraviolet rays.

4. Sealed aluminum flanged base ring.

2.2 FABRICATION

A. Roof panels and associated metal roofing components fabricated by, or provided by, a single-source manufacturer to fit together as a completed roofing assembly meeting the requirements specified herein.

B. Shop and field fabricate trim components meeting the roofing Manufacturers requirements for watertight fit.

C. Factory form roof panels by the specified Manufacturer, not job formed or formed on portable equipment in the Contractor's shop. In-line leveled prior to roll forming panel profile with fixed base equipment assuring highest level of quality control.

D. Roll formed in continuous lengths. No panel end laps between ridge and eave.

E. Fabricate trim, sheet metal flashing and accessories to fit secure and watertight at transitions and details. Replace items with improper fit.

F. Fabricate roof trim and sheet metal flashing from same specified finish same as roof panel.

G. Replace panels and components that result in completed installation being loose, bent or warped for proper fit.

H. Surface-applied sealants are not acceptable to finish poorly fabricated and poorly fitting components. Where components do not fit tight with overlapping metal joints and seams, replace materials to fit properly for overlapping, tight and secure fit.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect substrates and Work to verify the conditions are acceptable and complete.

B. Replace or repair unsatisfactory, wet or deteriorated roof substrates based on Quantity Allowances and Unit Prices.

C. Inspect metal roof panels and other components before installation. Repair or replace materials with scratches through the finish. Remove damaged and dented materials, and materials scratched through to the steel base material from the project.

D. Verify installation in accordance with approved shop drawings and manufacturer's instructions before beginning work including verifying secondary structural members and/or decking are satisfactory for metal roofing system.

E. Coordinate with metal roof system manufacturer to ensure that reduced clip spacing at eave, rake, ridge and corner areas are accommodated by framing spacing and/or substrate.

F. Inspect substrates and notify Engineer in writing of deficiencies observed effecting the installation and effecting the completed roofing system and associated components.

G. Inspect conditions at the walls. Replace deteriorated rough carpentry and resecure rough carpentry.

H. Inspect conditions at pipes, conduit, fans, stacks and curbs to determine conditions and work requirements necessary to disconnect services, remove equipment, reinstall equipment and install structural supports necessary to support the equipment and curbs. Provide electrical, plumbing, mechanical and other services necessary to relocate rooftop equipment and roof penetrations.

I. Commencement of work signifies acceptance of substrates. Correct defects in roofing work resulting from accepted substrates to Owner's satisfaction at no additional expense.

J. Reject and replace materials damaged during shipping, storage or handling.

K. Inspect storage conditions daily to ensure materials remain protected from damage, condensation, dew, rain or other contamination.

3.2 PREPARATION

A. Roof Substrate:

1. Dry and broom and/or vacuum clean of loose gravel, stone, dirt, dust, debris and foreign matter prior to installation of the roofing system. Do not use blowers unless accepted by the Engineer/Owner.

2. Remove free water and wet or damp debris from deck substrate surface before installing roofing system.

3. Verify wall substrates are in satisfactory condition before commencement of the Work.

B. Protection:

1. Protect the building and materials from exposure to weather related damages.

2. Protect building walls and other surfaces with canvas or suitable tarp wherever equipment or materials are taken up to or down from roof.

3. Protect building interiors using suitable methods required to prevent damage from roofing activities.

4. Dry-in the building daily to ensure the building remains watertight. Take necessary measures to protect the building from weather related exposures during the project.

5. Seal deck openings to prevent dust and debris from entering the building.

6. Protect building grounds, landscaping and exterior components and fixtures from damaged during construction activities. Repair damages to meet pre-construction conditions.

C. Coordination:

1. Coordinate work and associated work activities with the Engineer/Owner

2. Coordinate curb replacement and installation of curbs for fans and equipment with the Engineer/Owner in advance. Limit the scheduled outage of equipment to one day or less, and the schedule for outages in advance with the Engineer/Owner. Work on weekend or non-business hours as necessary to accommodate the Owner and occupancy.

3. Coordinate raising or relocating vent pipe/soil stack pipes with the Engineer/Owner.

4. Coordinate interior access and interior work with Engineer/Owner in advance. Do not proceed with interior work unless agreed upon by the Owner and occupants.

D. Roof Loading, Staging and Storage:

1. Evenly distribute loads of materials on roofs. Do not pre-load roofs with concentrated loads of materials that exceed the roof deck and structure's load bearing capacity.

2. Secure materials and equipment stored on the roof to prevent items from sliding or falling off of the roof.

3. Secure materials and equipment on the roof to prevent materials from being displaced by wind.

3.3 APPLICATION

A. General:

1. Allow for thermal movement, expansion and contraction, of sheet metal components. Install lengths of metal, fastening type and rate, metal joints, and connections to meet sheet metal industry recognized standards and published standards including those referenced herein.

2. Provide uniform sheet metal sections with corners, joints, and angles mitered, sealed and secured for tight fit.

3. Overlap, rivet and seal watertight counter flashing corners.

4. Hem sheet metal edges for strength and appearance.

5. Provide end closures fabricated to terminate each end of the detail for counterflashing, expansion joints and other applicable components. Conceal the adjacent substrates for watertight closures. Conform to the adjacent conditions and provide for a minimum 4-inch overlap.

6. Provide necessary cleats or stiffeners and other reinforcements as required to make sections rigid and substantial.

7. Fabricate, support, cleat, fasten and join sheet metal to prevent warping, "oil canning" and buckling. Adjust substrates, nailers, framing, etc. to ensure finished sheet metal is installed smooth.

8. Install sheet metal to prevent moisture from entering beyond the detail.

9. Provide sheet metal transition details with watertight redundancy including, but not limited to self-adhering underlayment membrane, concealed sealants, and metal joint back-up plates. Install, seal and lap secondary protection to ensure if the sheet metal detail fails to shed water, the secondary protection sheds limited moisture infiltration.

10. Do not allow dissimilar metals or other materials to make contact. Where dissimilar material is found in-place, prevent galvanic corrosion by a separation barrier approved by Manufacturer and accepted by Engineer.

11. Do not allow galvalume and galvanized steel and aluminum materials to be in contact with treated wood products. Provide a physical separation, including self-adhering underlayment to prevent contact.

12. Relocate plumbing vent pipes and vents to center of metal roof panels.

B. Night Seals/Daily Tie-ins:

1. At end of day's work, or when precipitation is imminent, build a water cut-off at open edges and penetrations. Construct tie-ins to withstand extended periods of service, anticipated storms, precipitation and high winds.

2. Take necessary precautions during construction to prevent weather related exposures to the building and materials, roof leaks and other weather-related damages resulting from the work included in the project.

3. Replace building insulation, ceilings, plywood, decking, fixtures, etc. wetted or damaged during Construction.

4. Repair damages resulting from water that enters under the metal roofing and components, and water that enters the building in the work areas during construction.

C. Field-Cutting Pre-Finished Metal:

1. Prohibit the use of abrasive/grinding blades, circular saws and reciprocating saws. Prohibit cutting operation that grinds, rips and tears the metal.

2. Approved cutting tools for Galvalume and pre-finished steel include aviation snips, sheet metal hand shears, electric metal shears and electric nibblers.

D. Standing Seam Roof Panels:

1. General application in accordance with the Manufacturers published installation instructions.

2. Install roofing system and components with tools recommended by the roofing manufacturer.

3. Install panels plumb, level and straight with seams and ribs parallel, conforming to design and manufacturer's published instructions as indicated.

4. Provide continuous roof panels, with no joints or seams, except where specified.

5. Install metal roof system weathertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.

6. Provide concealed fastener/clips at panel attachment locations.

7. Provide exposed fasteners in trim components with pre-painted head and washer with EPDM-backed gasket for watertight seal. Fasteners of size and type for metal thickness and substrate material. Follow the fastener manufacturer's published requirements for fastener application and installation instructions.

8. Install roof clips to allow the completed roofing assembly to accommodate anticipated specified thermal movement.

E. Roof Panel Seams:

1. Seam roof panels with the specified Manufacturer's electric seaming tool, producing a 90-degree seam.

2. Ensure the roof panel is seamed per the Manufacturer's published instructions.

3. Ensure seam has factory-applied sealant in place prior to seaming.

4. Calibrate and service seaming tool by the roofing manufacturer or other approved seaming tool manufacturer/service center. Calibrate and adjsut seaming equipment for the metal gage, type and finish.

5. Provide true, straight and aligned seam without bending, warping or scratching through the panel finish.

6. Replace panels due to improper roof panel seaming results.

F. Squareness:

1. Aesthetics of completed roofing is of utmost importance.

2. Provide panels, framing, components and trim aligned true, straight and square.

3. Ensure installation and sequence is square for proper fit of components.

4. Do not exceed tolerance for squareness of 1:500 (1.92 inch per 100 ft).

5. Maintain modularity and alignment of roof panels to prevent roof panel "stair-stepping" or "fanning".

6. Utilize the Manufacturer's "spacer tools", "module makers" and/or measuring tape to maintain consistent roof panel coverage.

7. Check for squareness after installing no more than every five (5) panels to ensure the panels are laying-up square and remain true.

8. Complete installation of roofing and associated components for watertight fit, to accommodate concealed sealants where specified, and to allow for specified thermal movement.

9. Correct abrupt and sharp transitions in the substrate to prevent crimping, bending or poor fitting sheet metal components that result in oil canning.

10. Correct roofing, flashing and sheet metal components that do not meet the specified tolerances.

G. Roof components, flashings, closures and trim:

1. Fabricate and supply sheet metal flashings, trim and closure materials by the standing seam roofing Manufacturer, unless otherwise specified.

2. Roof details and flashings pre-approved by the Manufacturer for inclusion in specified warranty.

3. Install in accordance with Manufacturer's shop drawings, details and published requirements.

4. Install details with redundancy, including secondary metal flashing, concealed sealant and metal roof panel underlayment beneath details.

5. Provide uniform sheet metal sections with corners, joints and angles mitered, sealed and secured.

6. Hem (return) exposed edges for strength and appearance.

7. Fit sheet metal close and neat.

8. Provide cleats or stiffeners and other reinforcements to make sections rigid and substantial.

9. Fabricate, support, cleat, fasten and join sheet metal to prevent warping, oil canning, and buckling.

10. Sheet Metal Laps: Unless otherwise indicated notch and lap ends of adjoining sheet metal sections not less than 4 inches; apply sealant tape or two beads of butyl sealant between sections. Lap miters at corners a minimum of 1 inch and apply butyl sealant between laps. Rivet at 2 inches on center.

H. Zee Closure:

1. Provide between roof panel seams.

2. Set in sealant tape and secure with five fasteners per roof panel spaced in accordance with manufacturer's installation instructions.

3. Tab vertical leg of zee closure and turn onto vertical panel seams. Set tab in butyl sealant.

4. Secure to vertical panel seam with one fastener.

5. Seal edges of zee and tab to vertical seam with sealant.

I. Sidewall Flashing:

1. Provide slotted angle along sidewall.

2. At beginning roof panel, but panel to slotted angle and allow horizontal flange of seam to extend past angle. At ending panel, turn roof panel up slotted angle and back 1" minimum to provide horizontal flange for securement.

3. Provide sealant tape along roof panel flange.

4. Fabricate sidewall flashing as indicated in Contract Drawings in 10 foot lengths.

5. Secure sidewall flashing to roof panel through sealant tape at 6 inches on center.

6. Lap sidewall flashing seams in shingle fashion with minimum 6 inch overlap and provide three beads of butyl sealant between sheet metal laps.

7. Provide sealant tape behind top termination of sidewall flashing and secure to wall substrate at 12 inches on center.

J. Receiver Flashing:

1. Fabricate receiver flashing as shown in detail drawings in 10 foot lengths.

2. Install receiver flashing surface mounted at 12 inches on center. If receiver flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.

3. Install sealant properly tooled to ensure adhesion and slope to shed water in saw-cut reglet.

K. Counterflashing:

1. Fabricate counterflashing as shown in detail drawings in 10 foot lengths.

2. Install counterflashing as indicated in detail drawings and secure to receiver flashing 12 inches on center. If counter flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.

3. Stagger receiver anchors with counter flashing fasteners.

4. Extend counter flashing a minimum of 1.5 inches below metal roof panel flashing termination.

L. Fascia Cover:

1. Provide fascia cover secured at 12 inches on center where indicated in detail drawings.

2. Lock fascia cover onto continuous cleat if present and hand tong metal edge onto continuous cleat.

M. Rake Flashing:

1. Provide slotted rake angle along rake edge.

2. At beginning roof panel, but panel to rake angle and allow horizontal flange of seam to extend past angle. At ending panel, turn roof panel up rake angle and back 1" minimum to provide horizontal flange for securement.

3. Provide sealant tape along roof panel flange.

4. Fabricate rake flashing and continuous cleat as shown in detail drawings in 8 foot or 10 foot lengths.

5. Install a continuous cleat as indicated in detail drawings fastened to substrate 6 inches on center. Locate fasteners no greater than 1-3/4 inch from the break at the bottom hem.

6. Lock rake flashing onto continuous cleat crimp as shown.

7. Hand tong metal edge onto continuous cleat.

8. Secure rake flashing to roof panel through sealant tape at 6 inches on center.

9. Lap rake flashing seams in shingle fashion with minimum 6 inch overlap and provide three beads of butyl sealant between sheet metal laps.

N. Eave Closure:

1. Fabricate eave closure as shown in detail drawings in 10 foot lengths.

2. Provide sealant tape below closure and secure closure at 12 inches on center along line of tape.

3. Lap seams with minium 4 inch overlap and provide two beads of butyl selant between sheet metal laps.

O. Ridge:

1. Lock back-up plate to panel end along both sides of ridge.

2. Secure back-up plate (offset 3/8 inch) to structure.

3. Provide 3 inch long sealant tape along top of female panel seam before male side of next roof panel is installed.

4. Provide zee closure as specified above.

5. Provide sealant tape along top of zee closure.

6. Provide ridge vent secured at 6 inches on center into zee closure. Do not install fasteners through panel seams.

7. Lap adjoining sections of ridge vent not less than 1 inch and provide butyl sealant between sections.

8. Provide sealant tape along top of ridge vent.

9. Provide ridge cap secured at 6 inches on center through sealant tape. Do not install fasteners through panel seams.

10. Lap adjoining sections of ridge cap a minimum of 4 inches and provide two beads of butyl sealant between sheet metal laps.

P. Hip:

1. Lock back-up plate to panel end along both sides of hip.

2. Secure back-up plate to structure.

3. Provide 3 inch long sealant tape along top of female panel seam before male side of next roof panel is installed.

4. Provide zee closure as specified above.

5. Provide sealant tape along top of zee closure.

6. Provide hip cap secured at 6 inches on center through sealant tape. Do not install fasteners through panel seams.

7. Lap adjoining sections or hip cap a minimum of 4 inches and provide two beads of butyl sealant between sheet metal laps.

Q. Valley Flashing (Floating):

1. Provide valley flashing secured at 12 inches on center.

2. Lap adjoining sections of valley flashing in shingle fashion a minimum of 8 inches and provide three beads of butyl sealant between lapped section.

3. Provide valley cleat (offset 3/8 inch) secured at 6 inches on center. Provide sealant tape below valley cleat and locate fasteners through sealant tape.

4. Field notch roof panel legs and bend pan to form open hem to lock onto valley cleat. Install to accommodate thermal movement.

R. Gutters:

1. Fabricate to profile shown in Contract Drawings.

2. Formed in 10 foot lengths. Joints in gutters lapped a minimum of 1 inch, riveted 1 inch on center. Install butyl sealant between gutter sections and silicone sealant at exposed inside edge and on rivets. Lap joints in the direction of water flow if possible.

3. Provide butt type expansion joints in gutters at spacing appropriate for the type material used to fabricate gutters. Refer to SMACNA Manual Figure 1-7. Maximum length of gutters 50 feet.

4. Provide downspout outlets in downspout locations. Refer to SMACNA Manual Figure 1-33B. Gutter outlet tubes tabbed a minimum of 1 inch, set in a bead of butyl sealant and secured to gutter with a minimum of two rivets per tab.

5. Attachment: Provide top and bottom hangers as shown in detail drawings. Space be 32 inches on center or every other panel rib on standing seam metal roofs. Provide a minimum of two fasteners to secure top hanger to standing seam and one fastener to secure top

6. Hang gutters level.

S. Downspouts:

1. Fabricate downspouts in 10 foot lengths. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-32B.

2. Tie into below grade storm drainage system or if no below grade system is present, kick-out above grade onto concrete splash blocks. Fill in soil to provide slope away from building.

3. Provide square to round transition to tie into below grade storm drainage system.

4. Secure to the structure with two-piece hangers spaced no more than 8 feet apart with a minimum of two hangers per downspout with a hanger located within 12 inches from bottom. Prime and paint hangers to match downspouts. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-35H.

5. Fashion downspouts to run back to (at overhangs) and parallel to the facility walls.

6. Provide discharge elbow at the base of downspout where it kicks out onto splash pan or splash block.

7. Where downspouts discharge onto lower adjacent roof areas, provide splash pans at discharge as specified below.

T. Fasteners:

1. Install fasteners as specified, detailed and as published and designed by the fastener manufacturer for the materials being joined.

2. Consult and follow the fastener manufacturer's published literature for proper preparation and installation.

3. Properly seat fasteners, do not over drive or under drive. Do not bend, dent or warp sheet metal during fastener installation.

4. Pre-drill substrates where required to properly install fasteners.

5. Replace improperly driven/installed fasteners with properly sized fastener for each application.

6. Rivets: #44 stainless steel rivets with stainless steel mandrel with factory painted head to match adjacent sheet metal. Length of rivet to properly fasten particular sheet metal components.

U. Sealants:

1. Seal sheet metal joints and junctures between sheet metal and adjacent substrates with specified, compatible sealants.

2. Clean sheet metal and adjacent substrates free of dust, debris and incompatible coatings.

3. Prime and preare sheet metal and adjacent substrates s to meet sealant manufacturers' published literature and recommendations.

4. Inspect sheet metal joints before sealant application. Fasten and/or tightly fit joints to prevent sealed joints from buckling or opening.

5. Ensure environmental conditions area dry and precipitation is not anticipated during, or no less than 24 hours after, sealant application. Follow sealant manufacturers' published literature regarding environmental conditions.

6. Apply and tool sealant as indicated and recommended in sealant manufacturers' published literature.

V. Roof Curbs:

1. Ensure curbs fit accurately to roofing system and equipment. Replace improperly fabricated, sized and installed curbs with properly sized curbs for accurate fit.

2. Comply with metal roof system manufacturer's shop drawings, instructions and recommendations for installation of roof curbs. Refer to metal roof system manufacturer's standard installation details. Anchor curbs securely in place with provisions for thermal and structural movement.

3. Ensure dimensions of curbs and supports fit the rooftop equipment and conform to the metal roofing system for accurate and watertight fit to accommodate thermally induced panel movement.

4. Protect equipment and building from damages during construction.

5. Install materials and components supplied by curb manufacturer to support the equipment and curb, and allow for thermal movement of roofing panels.

6. Install and seal curb and seam caps for a permanent watertight detail without relying on exterior applied sealants.

7. Install equipment on the curbs, secure and seal watertight. Ensure equipment operates to Engineer/Owners satisfaction upon completion of work.

8. Inaccurate installation and poor fit between curb and roofing panels is not acceptable; replace or reinstall improper curbs.

9. Provide PVC condensate drain lines for HVAC units secured to the standing seam with compatible hardware and extend down to the gutter along the roof edge.

W. Prefabricated Roof Jacks:

1. Move/relocate and re-secure pipe penetrations that touch roof panel standing seams to ensure the pipe and roof jack are installed in the flat of the panel pan without touching the vertical seam

2. Refer to referenced standards and applicable State Plumbing Code.

3. Reinstall to ensure the vent pipes or penetrations are operational to pre-construction function.

4. Seal vent pipes airtight at joints and connections.

5. Ensure roof jack installation without damages or exposure to building interior to weather exposure.

X. Unfaced Batt Insulation:

1. Comply with batt insulation and metal roofing manufacturer's installation instructions for particular conditions of installation.

2. Install tightly around framing under retrofit metal roofing system.

3. Install vinyl facing to the interior of the building.

3.4 CLEAN UP

A. Dispose of excess materials and remove debris from site. Maintain construction related debris in approved disposal containers.

B. Clean work in accordance with manufacturer's recommendations.

C. Protect work against damage until final acceptance. Replace or repair, to the satisfaction of the Owner, work that becomes damaged prior to final acceptance.

D. Touch up minor scratches and abrasions with touch up paint supplied by the metal roof system manufacturer. Minor scratches are considered scratches that extend into the finish only, not down to the base metal:

1. Scratches that extend into the paint finish only and not down to the base metal.

2. Scratches that do not extend more than 4 inches in length.

3. Where no more than 2 scratches in lengths of less than 4 inches are present in a 1 sf area of a metal roof panel.

E. Replace significantly scratched metal panels.

1. Scratches that extend down to the base metal.

2. Scratches that extend more than 4 inches in length.

3. Where more than 2 scratches in lengths less than 4 inches are present in a 1 sf area of a metal roof panel.

4. Where touch up paint is visible when viewing the metal roof panels from a common pedestrian area from the ground as judged by the Owner and Engineer.

F. Do not allow panels or trim to come in contact with dissimilar metals including copper, lead or graphite. Control water run-off from dissimilar materials.

G. Remove metal dust and cut debris produced by cutting, drilling and fastening. Do not allow metal dust and cut debris to remain on pre-finished metal panels.

H. Prevent metal chips, shavings, etc. from staining the building, roof and associated fixtures and components. Remove rust stains.

I. Prevent damage during cleaning activities. Do not allow cleaning materials and methods to damage building, grounds, components or fixtures.

J. Ensure trash and debris, especially nails and shingles, are removed from the yard and grounds. Place nails, shingles, sharp sheet metal scraps and other construction related debris in suitable waste containers.

END OF SECTION

SECTION 07 42 13

METAL WALL PANELS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

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

1.2 RELATED DOCUMENTS

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

1. Section 07 41 13 - Metal Roof Panels

1.3 REFERENCE STANDARDS

A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2023.

B. ASTM D523 - Standard Test Method for Specular Gloss; 2014 (Reapproved 2018).

C. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2017).

1.4 PERFORMANCE REQUIREMENTS

A. Design Requirements:

1. Provide factory preformed wall panel system tested and certified by the manufacturer to comply with specified requirements under installed conditions.

2. Provide one-piece, single length wall panels.

3. Provide continuous interlocking seams with open hem male legs that inherently increases load span capability, stiffness, and flexural stress handling.

B. Attachment of Panels as determined in accordance with ASTM E1592 along with holding strength of fasteners to structure in accordance with submitted test data, provided by fastener manufacturer, based on length of embedment and properties of materials.

1. Do not exceed 4 feet on center for fastener spacing for attachment of panels.

1.5 SUBMITTALS

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

B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

C. Shop Drawings: Show details, trim pieces, transitions and closures necessary to install wall panels.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Minimum of 10 years' experience supplying metal siding to the region where the work is performed.

B. Installer Qualifications:

1. Acceptable to, licensed or certified by manufacturer.

2. Not less than 3 years' experience with systems.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect against damage and discoloration.

B. Handle panels with non-marring slings.

C. Do not bend panels.

D. Store panels above ground, with one end elevated for drainage.

E. Protect panels against standing water and condensation between adjacent surfaces.

F. If panels become wet; separate sheets, wipe dry with clean cloth, and allow to air dry.

G. Remove strippable film coating prior to installation and do not allow it to remain on the panels in extreme cold, heat or in direct sunlight.

H. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 WARRANTY

A. Included in the metal roof panel manufacturer's weathertight and finish warranty as specified in Section 07 41 13 - Metal Roof Panels.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Same as manufacturer of metal roof panel system. Refer to Section 07 41 13 - Metal Roof Panels.

2.2 PRODUCTS

A. Flush Seam Wall Panels:

1. Base Metal: 24-gauge, Galvalume coated steel meeting or exceeding AZ50 per ASTM A792/A792M.

2. Face: Manufactured with two radii stiffening ribs.

3. Panel size: 12 inches in width.

4. Seam size: Nominal 1 inch deep interlocking seams with a structurally qualifying open hem on the male leg.

2.3 RELATED MATERIALS

A. Fasteners:

1. Flush Seam Panel Screws:

a. For metal: #10-16 x 1" long self-drilling, self-tapping pancake head Phillips drive screws.

b. For plywood: #10-12 x 1" long A-point fastener, pancake head Phillips drive screws.

2. Blind Rivets: Solid-threaded, sealed stem type with EPDM washer under head and factory painted heads to match wall panel finish color.

B. Accessories:

1. Provide manufacturer's standard accessories and other items essential to completeness of installation including anchor clips, trim, corner closures, flashing, and fascia.

2. Form flashings, closure, and trim from same gauge and finish as wall panels.

2.4 FABRICATION

A. Correctively leveled and handled to minimize stress and waviness of sheet steel.

B. Form and fabricate sheets, seams, strips, clips, valleys, ridges, edge treatments, integral flashings, and other components of the metal roofing to the profiles, patterns, and drainage arrangements as determined by Engineer, to provide permanent leakproof construction, with no oil canning or panel distortion.

1. Fabricate exposed items of prefinished sheet metal, color to match panels.

2. Hem exposed edges on underside 1/2-inch miter and seam corners.

3. Provide for thermal expansion and contraction of the Work.

4. Seal joints to achieve leak proof construction per manufacturer's detail.

C. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

D. Provide continuous length panels with no end laps.

E. Factory form panels. Field formed panels are not acceptable.

2.5 FINISH

A. Exterior Finish:

1. 70 percent Kynar 500/Hylar 5000 for a total 1.0 mil dry film thickness with a specular gloss of 10-15 percent when tested in accordance with ASTM D523 at 60 degrees.

B. Interior Finish:

1. Primer Coat Material: Corrosion-resistant primer; primer coat dry film thickness: 0.15 mils; finish coat material: polyester paint, finish coat dry film thickness: 0.35 mils.

2. Total Interior Dry Film Thickness: 0.50 mils.

3. Color: Off-White.

PART 3 EXECUTION

3.1 EXAMINATION

A. Substrate:

1. Examine substrate to ensure that it is properly secured and prepared to receive metal wall panels.

2. Ensure substrate is installed flat, free from objectionable warp, wave, and buckle.

3.2 INSTALLATION

A. Metal Wall Panels:

1. Follow panel manufacturer's directions.

2. Install panel seams vertically.

3. Lap panels away from prevailing wind direction.

4. Do not stretch or compress panel side-laps.

5. Secure panels without warp or deflection.

6. Clean and dry surfaces prior to applying sealant.

7. Exposed fasteners are not allowed, except to fasten flashings, at fixed points, or as indicated on Drawings.

8. Field apply sealant to penetrations, transitions, and other locations necessary to prevent water infiltration.

9. Leave 1/4-inch space between bottom of metal wall panels and receiver flashing.

B. Flashing:

1. Follow manufacturer's directions and Engineer accepted Shop Drawings.

2. Install flashings to allow for thermal movement.

3. Remove strippable protective film preceding flashing installation.

4. Make end cuts and install sealant and flashings to achieve weathertight installation.

C. Cutting and Fitting:

1. Neat, square and true. Torch cutting, electric saws and grinders with abrasive wheels are prohibited where cut is exposed to final view.

2. Openings 6 inches and larger in one direction: Shop fabricate and reinforce to maintain original load capacity.

3. Where necessary to saw-cut panels, debur cut edges.

D. Dissimilar Metals:

1. Where sheet metal is in contact with dissimilar metals, execute juncture to facilitate drainage and minimize possibility of galvanic action.

2. At point of contact with dissimilar metal, coat metal with protective paint or tape which can be placed between metals.

3.3 PROTECTION

A. Protect work as required to ensure no metal wall panel system damage at time of final completion.

B. Do not allow panels or trim to come in contact with dissimilar metals including copper, lead or graphite. Control water run-off from dissimilar materials.

C. Remove metal dust and cut debris produced by cutting, drilling and fastening. Do not allow metal dust and cut debris to remain on pre-finished metal panels.

D. Prevent metal chips, shavings, etc. from staining the building, roof and associated fixtures and components. Remove rust stains.

E. Prevent damage during cleaning activities. Do not allow cleaning materials and methods to damage building, grounds, components or fixtures.

3.4 REPAIRS

A. Touch up minor scratches and abrasions with touch up paint supplied by the metal roof system manufacturer. Minor scratches are considered scratches that extend into the finish only, not down to the base metal:

1. Scratches that extend into the paint finish only and not down to the base metal.

2. Scratches that do not extend more than 4 inches in length.

3. Where no more than 2 scratches in lengths of less than 4 inches are present in a 1 sf area of a metal roof panel.

B. Replace significantly scratched metal panels.

1. Scratches that extend down to the base metal.

2. Scratches that extend more than 4 inches in length.

3. Where more than 2 scratches in lengths less than 4 inches are present in a 1 sf area of a metal roof panel.

4. Where touch up paint is visible when viewing the metal roof panels from a common pedestrian area from the ground as judged by the Owner and Engineer.

END OF SECTION

SECTION 07 72 53

SNOW GUARDS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide snow guards at perimeter eave and upslope side of vent pipe penetrations.

1.2 RELATED DOCUMENTS

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

1. Section 07 41 13 - Metal Roof Panels

1.3 REFERENCE STANDARDS

A. ASTM B85/B85M - Standard Specification for Aluminum-Alloy Die Castings; 2018, with Editorial Revision.

B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

1.4 SUBMITTALS

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

B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

C. Shop Drawings: Snow Guard Layout and Attachment Details

1. Include engineering calculations to document snow guard layout will support the design snow load and snow drift for the building.

1.5 DELEGATED DESIGN

A. Design of snow guard layout by a South Carolina registered Professional Engineer (PE).

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Deliver materials to site in Manufacturer's original unopened packaging with labels intact.

B. Storage: Adequately protect against damage while stored at the site.

C. Handling: Comply with Manufacturer's instructions.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions required.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers:

1. S-5! Colorgard
2. Alpine SnowGuards
3. Sno Gem
4. Engineer's Accepted Equivalent.

2.2 MATERIALS

A. Snow Guards for Standing Seam Metal Roofs:

1. Clamps:
   a. Manufactured from 6061-T6 Aluminum extrusions conforming to ASTM B221 or aluminum castings conforming to ASTM B85/B85M and to AA Aluminum Standards and Data.
   b. Clamp Model: Designed for attachment to metal panel seam configuration.
   c. Set Screws: 300 series stainless steel, 18-8 alloy, 3/8 inch diameter, with round nose point.
   d. Attachment Bolts: 300 series stainless steel, 18-8 alloy, 10 mm diameter, with flat washers.
2. Cross Members:
   a. Manufactured from 6061-T6 alloy and temper aluminum extrusions conforming to ASTM B221 and to AA Aluminum Standards and Data.
   b. Receptacle face to receive color-matched metal strips.
   c. Provide splice connectors ensuring alignment and structural continuity at end joints.
3. Color Strips:
   a. Same material and finish as roof panels, obtained from roof panel manufacturer.
4. Snow and Ice Clips: Aluminum, with rubber foot, minimum 3 inches wide.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates to receive Work and report detrimental conditions in writing to Engineer. Commencement of Work will be construed as acceptance of substrates.

B. Coordinate with other Work which affects, connects with, or will be concealed by this Work.

3.2 INSTALLATION

A. Install snow guard per manufacturer's instructions at locations indicated in the Contract Documents and approved Shop Drawings.

3.3 ADJUSTING

A. Remove and replace damaged snow guards with new material.

3.4 CLEANING

A. During the course of the Work and on completion, remove and dispose of excess materials, equipment and debris away from premises.

END OF SECTION

SECTION 13 34 21

REVISION NO. 1 - STRUCTURAL RETROFIT ROOF SUB-FRAMING SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide retrofit roof sub-framing.

1.2 RELATED DOCUMENTS

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

1. Section 07 41 13 - Metal Roof Panels

1.3 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

B. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

1.4 DESCRIPTION

A. Structural retrofit roof sub-framing system: Provide support for a metal roofing system constructed over the existing roof. Engineered in accordance with the specified code and design loads and transfer positive acting loads at attachment locations into structural members.

1.5 PERFORMANCE REQUIREMENTS

A. General

1. Design for acceptance and installation in accordance with the Contract Documents, a retrofit sub-framing and metal roof panel assembly as a structural package.

2. Engineer and factory fabricate sub-framing system in accordance with applicable references.

3. Coordinate design with the retrofit sub-framing manufacturer and the metal roof panel manufacturer to perform as one engineered structural package where the metal roof system controls the placement of sub-framing members.

4. Submit additions/revisions to sub-framing members as a result of field conditions and/or demands for review and approval by the manufacturer.

B. Engineering Design Criteria:

1. Importance Category: III

2. Roof Live Load: 20 PSF

3. Ground Snow Load: 10 PSF

4. Wind Speed: 120 MPH

5. Exposure Category: C

6. Enclosure: Enclosed

1.6 SUBMITTALS

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

B. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

C. Shop Drawings: Submit manufacturer's shop drawings for sub-purlins indicating gauge, yield strength, flange and web sizes, cut-out dimensions, and punch pattern for attachment holes in base flange.

D. Design Data: Submit design data from independent engineering firm indicating table of wind uplift capacity of sub-purlins.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Deliver materials to site in manufacturer's original, unopened bundles, containers, and packaging, with labels clearly identifying product name and manufacturer.

B. Storage:

1. Store materials in accordance with manufacturer's instructions.

2. Protect sub-purlins from corrosion, deformation, and other damage.

3. Store sub-purlins off ground, with one end elevated to provide drainage.

1.8 COORDINATION

A. Coordinate work with of other trades.

B. Coordinate with the metal roof system supplier to provide supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound and secure installation.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Minimum of five years' experience in manufacturing and fabrication of retrofit sub-framing systems of this nature.

B. Light-gauge steel sub-framing components specified in this section produced in a factory environment by roll forming and press-brake equipment assuring the highest level of quality control.

C. Manufacturers:

1. Roof Hugger, LLC.

2. TopHat Zee-Strip

3. Engineers accepted Equivalent.

2.2 RETROFIT STEEL SUB-PURLINS

A. Standard Retrofit Factory-notched Sub-Purlins:

1. Description:

a. One-piece, custom-notched and punched, Z-shaped section.

b. Pre-punched to nest over existing through-fastened, low clip and high clip standing seam roof panel ribs for low-profile attachment.

c. Pre-punched for attachment fasteners.

d. Integrally formed Anti-Rotational Arm as required for high clip standing seam panels.

e. Fastens directly into existing purlins, joists or structural decking with fasteners.

2. Material:

a. Galvanized steel, ASTM A653/A653M or ASTM A1011/A1011M, G-90, yield strength 50 KSI.

b. Thickness: 16-gauge or 14-gauge as required by engineer.

c. Web Height: manufacturer's standard.

d. Base Flange Width: Pre-punch base flange to manufacturer's standard unless otherwise specified.

e. Top Flange Width: Nominally 2 inches with 0.25 inch minimum stiffening lip unless otherwise specified.

f. Length: Nominally 10 feet long, plus an additional +/- 1 inch top flange extension for part lap or per manufacturer's recommendations.

B. Attachment Fasteners/Anchorage

1. "Standard" Roof Hugger Sub-Purlin:

a. Attachment to Existing Purlins/Joist/Decking: (2) 1/4 inch-14 x 2-inch, DP3 self-drilling screws.

b. Existing Purlin Strengthening, Top Flange Lap Connection:(4) #10-16 x 1-inch pancake head screws through overlapping sub-purlin top flanges, joining them into a continuous member, per lap connection or as specified.

c. Mid-Span Hugger Sub-Purlin to Sub-Rafter: (2) 1/4 inch-14 x 1-inch, DP3 self -drilling on each side of cutout and one #10-16x1inch pancake head screw installed through sub-purlin top flange, into sub-rafter.

d. Mid-Span Hugger Sub-Purlin to Existing Panel: #17-14 fasteners shall be installed through the mid-span of sub-purlin into the existing roof panels as specified or per standard details (over-drilling of pre-punched hole will be required).

e. Fastener Length: As required to penetrate existing purlins in accordance with fastener attachment standards.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine existing roof areas to receive sub-purlins. Notify Engineer if areas are not acceptable or structurally adequate. Do not begin installation until unacceptable conditions have been corrected.

B. Verify existing purlins and eave struts are in good serviceable condition, without rust-thru of flanges.

C. Field Verify Before Ordering of and Installation of Sub-Purlins:

1. Existing panel profile and panel rib dimensions.

2. Existing panel run-out by measuring roof over several 20-foot areas to confirm panels were installed on module and in-square. Note variations.

3.2 INSPECTION

A. Conduct an inspection of the roof to identify elements that are a cause for concern, panel deterioration, structural deterioration, equipment curbs, plumbing and electrical penetrations, special flashing requirements, and other items. Submit concerns to the Engineer for review and evaluation.

B. Perform a survey of the roof and confirm the existing panel dimensions, type and profile. In the case of existing standing seam roofing, determine if the existing roof employs standard or high clips. If high panel clips are existing, determine the standoff dimension.

C. Record field measurements of the existing roof geometry including width, length, eave height, roof pitch and purlin spacing. Submit this information to the retrofit sub-framing system manufacturer for coordination and integration into the design and installation documents.

3.3 INSTALLATION

A. Install sub-purlins in accordance with manufacturer's instructions at locations indicated on the Engineered Drawings.

B. Limit installation of sub-purlins to amount that can be roofed over each day.

C. Install fasteners as directed by Manufacturer and Engineer.

D. Install sub-purlins directly over existing purlins and fasten to existing purlin through existing panel pan section.

E. If integral sub-rafters are used, loosely lay Sub-rafters over the existing panel high ribs and between the existing purlins. Spacing of sub-rafters and number of fasteners as specified on the engineered Drawings.

F. Press the Roof Hugger sub-purlins over the sub-rafters on the existing purlin lines in areas where they are specified and install fasteners shown on engineered Drawings through the base flange of the sub-purlin, through the sub-rafter and then into the existing purlins being careful to maintain the alignment of the sub-rafters.

G. Install sub-purlins onto the integral sub-rafters between the existing purlins as specified with 1/4 inch-14 threads per inch, DP3 fasteners, typically one fastener on each side of the sub-rafter unless otherwise specified.

H. Where the sub-purlin is attached to the existing roof panel, drill out the pre-punched base flange hole to the correct diameter to allow for the installation of a #17-14 fastener through the Roof Hugger and into the existing roof panel.

I. Where the sub-purlin passes over the fitted sub-rafter, fasten through the top flange of the sub-purlin with a #10-16 pancake head fastener into the top of the fitted sub-rafter.

J. Removal of Existing Roof Fasteners: Do not remove existing roof fasteners unless installation of sub-purlins over fasteners causes sub-purlins to "roll" or "porpoise". Some distortion of base flange of sub-purlins caused by existing roof fasteners is normal.

K. Rooftop Components and Equipment

1. When mechanical equipment locations conflict with retrofit roof sub-framing components, provide additional framing that accommodates the relocation, replacement or re-flashing of the equipment. Submit construction details for this condition to the Engineer.

2. When electrical service and equipment needs to be removed, extended and reinstalled at the metal roof system height/plane, extend the wiring in accordance with the local building and electrical codes.

3. Comply with provisions of local building codes for extending, relocating and flashing vent pipes.

4. Comply with provisions of local building codes for extending, relocating ducts and curbs.

END OF SECTION

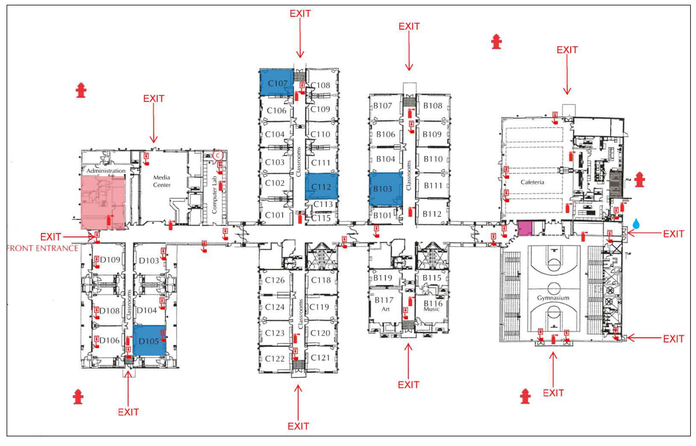
YORK SCHOOL DISTRICT 1

JEFFERSON ELEMENTARY SCHOOL
METAL ROOF RE-COVER

1543 CHESTER HWY
YORK, SC 29745

REI PROJECT NO. 024CLT-079

DATE: 01-28-25



A LIFE SAFETY PLAN
SCALE: N.T.S.

B SITE PLAN
SCALE: N.T.S.

GENERAL NOTES:
1. THESE DOCUMENTS ARE THE PROPERTY OF REI ENGINEERS, INC. (REI) AND REI RETAINS ALL RIGHTS THEREIN, INCLUDING COPYRIGHTS. IT MAY ONLY BE USED IN A MANNER CONSISTENT WITH REI'S RIGHTS WHILE REI IS PROVIDING SERVICE FOR THE SPECIFIC PROJECT IDENTIFIED OR REFERRED TO HEREIN OR EXTENSIONS THERETO. IT MAY NOT BE USED FOR ANY OTHER PURPOSE EXCEPT WITH THE EXPRESS WRITTEN AGREEMENT OF, AND COMPENSATION TO, REI ENGINEERS, INC.
2. DIMENSIONS, DETAIL COMPONENTS AND EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.
3. ONLY ONE DETAIL INDICATOR MAY BE SHOWN FOR EACH TYPE OF ROOF PENETRATION. ALL OTHER SIMILAR PENETRATIONS ARE TO BE FLASHED AS REQUIRED BY THE TYPICAL DETAIL INDICATOR, UNLESS OTHERWISE NOTED.
4. NOTES ARE INTENDED TO PROVIDE TYPICAL LOCATIONS OF WORK. IT IS THE CONTRACTORS RESPONSIBILITY TO QUANTIFY ALL LOCATIONS.

DETAIL NOTES:
1. LIGHT LINES REPRESENT EXISTING CONSTRUCTION TO REMAIN AND DARK LINES REPRESENT NEW COMPONENTS TO BE PROVIDED.

ELEVATION NOTES:
1. ELEVATIONS ARE PROVIDED FOR REFERENCE. ACTUAL CONDITIONS MAY VARY ON EACH BUILDING ELEVATION. CONTRACTOR SHALL FIELD VERIFY CONDITIONS PRESENT ON EACH ELEVATION.

ABBREVIATION LIST:

AB	ABANDONED	MIN.	MINIMUM
ALUM.	ALUMINUM	N.I.C.	NOT IN CONTRACT
BLDG.	BUILDING	NOM.	NOMINAL
CJ	CONTROL JOINT	N.T.S.	NOT TO SCALE
DS	DOWNSPOUT	O.C.	ON CENTER
EJ	EXPANSION JOINT	OF	OVERFLOW
EPDM	ETHYLENE PROPYLENE DIENE MONOMER	PS	PRESSURE SENSITIVE
		PVC	POLYVINYL CHLORIDE
EX.	EXISTING	RPLC.	REPLACEMENT
GALV.	GALVANIZED	SF	SQUARE FEET
GA.	GAUGE	S.S.	STAINLESS STEEL
HT	HEIGHT	SIM.	SIMILAR
MAX.	MAXIMUM	TERM.	TERMINATE/TERMINATION
		TYP.	TYPICAL

DRAWING INDEX:

BUILDING CODE REFERENCE:
2021 SC BUILDING CODE
2009 IECC
2021 SC EXISTING BUILDING CODE
2021 SC FIRE CODE
2021 SC FUEL GAS CODE
2021 SC MECHANICAL CODE
2021 SC PLUMBING CODE
NFPA 70 WITH SC MODIFICATIONS

C GENERAL NOTES & INFORMATION
SCALE: N.T.S.

REI ENGINEERS
Engineering solutions for tomorrow®
1927 J.N. Pease Place | Suite 201
Charlotte, NC 28262
SOUTH CAROLINA
CERTIFICATE OF
AUTHORIZATION #1906
www.reiengineers.com

SEALS:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 28529
JEREMIAH WEBSTER

Digitally signed by Jeremiah Webster
DN: C=US, E=jwebster@reiengineers.com, O=REI Engineers, CN=Jeremiah Webster
Date: 2025.03.11 12:55:12-04'00'

PROJECT NAME:
YORK SCHOOL DISTRICT 1
JEFFERSON ELEMENTARY SCHOOL
METAL ROOF RE-COVER
1543 CHESTER HWY
YORK, SC 29745

PROJ. NO:
024CLT-079

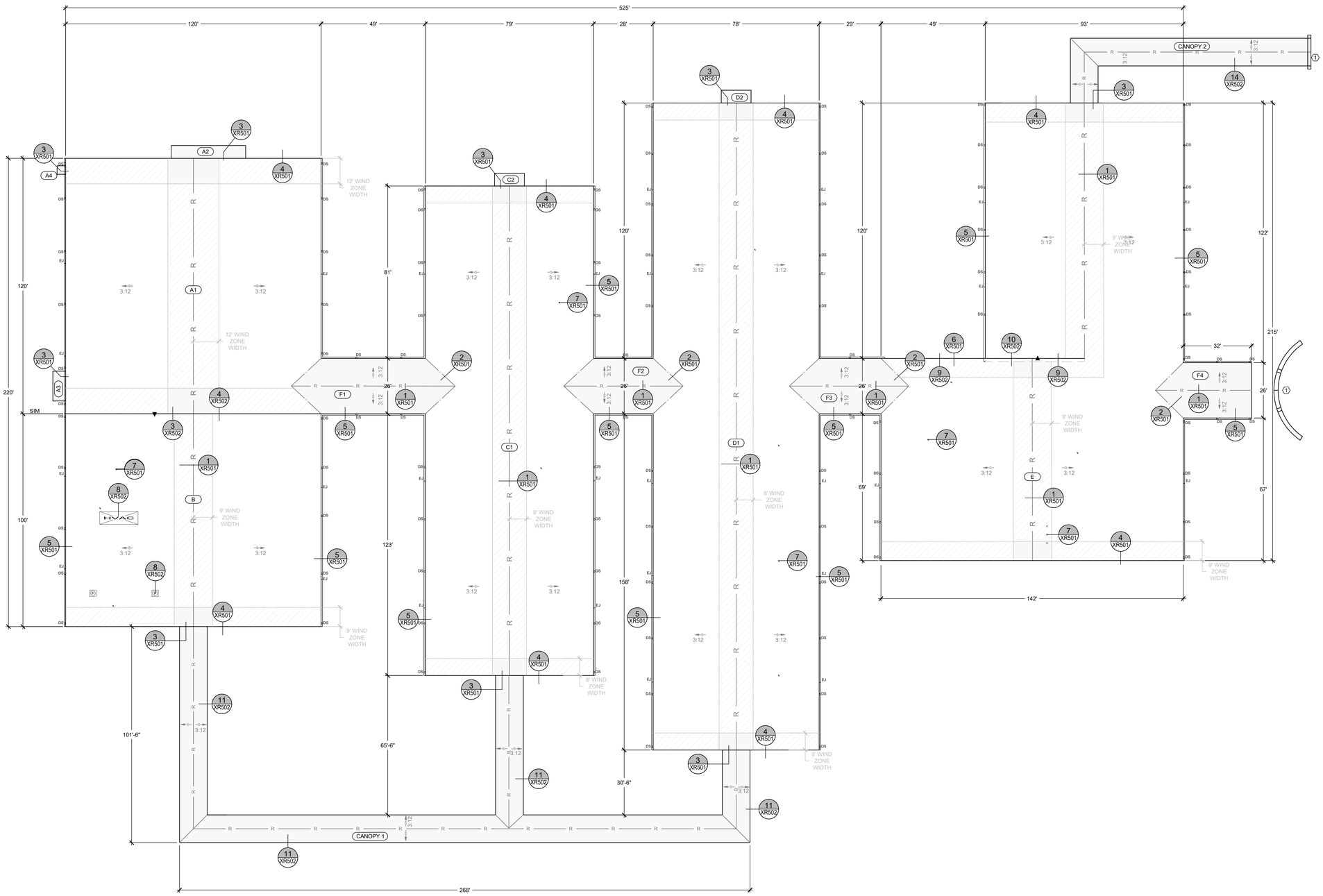
ISSUE:

NO.	DATE	DESCRIPTION
CD	01-28-25	CONTRACT DOCUMENTS
1	02-11-25	ADDENDUM NO. 1

THIS LINE IS 1 INCH ON THE ORIGINAL DRAWING
IF IT IS NOT 1 INCH ON THIS PAGE, SCALE DRAWING ACCORDINGLY.

SHEET TITLE:
COVER

DRAWING:
G-001



A ROOF PLAN

SCALE: 1"=20'

PLAN NORTH

1"=20' 20 0 20 40

ROOF SECTOR	AREA	HEIGHT (FT.)
A1	±14,216 SQ. FT.	39
A2	±210 SQ. FT.	12
A3	±84 SQ. FT.	12
A4	±16 SQ. FT.	12
B	±12,000 SQ. FT.	22
C1	±17,806 SQ. FT.	22
C2	±84 SQ. FT.	12
D1	±23,348 SQ. FT.	22
D2	±84 SQ. FT.	12
E	±24,240 SQ. FT.	22
F1	±1,638 SQ. FT.	12
F2	±1,092 SQ. FT.	12
F3	±1,105 SQ. FT.	12
F4	±1,001 SQ. FT.	12
CANOPY 1	±5,882 SQ. FT.	12
CANOPY 2	±1,675 SQ. FT.	12

WIND UPLIFT SUMMARY

ASCE 7 - 16

ULTIMATE DESIGN WIND SPEED	120 MPH
RISK CATEGORY	III
EXPOSURE	C
ENCLOSURE	ENCLOSED

	ULTIMATE WIND UPLIFT PRESSURES (Pult)	MIN. REQUIRED WIND UPLIFT STRENGTH (Ires = Pult X 1.25 SF)
ZONE 1 - FIELD	-61 PSF	-77 PSF
ZONE 2 - PERIMETER	-88 PSF	-110 PSF
ZONE 3 - CORNER	-105 PSF	-132 PSF

WIND ZONES

- ZONE 1 (FIELD)
- ZONE 2 (PERIMETER)
- ZONE 3 (CORNER)

GENERAL NOTES:

1. THESE DOCUMENTS ARE THE PROPERTY OF REI ENGINEERS, INC. (REI) AND REI RETAINS ALL RIGHTS THEREIN, INCLUDING COPYRIGHTS. IT MAY ONLY BE USED IN A MANNER CONSISTENT WITH REI'S RIGHTS WHILE REI IS PROVIDING SERVICE FOR THE SPECIFIC PROJECT IDENTIFIED OR REFERRED TO HEREIN OR EXTENSIONS THERETO. IT MAY NOT BE USED FOR ANY OTHER PURPOSE EXCEPT WITH THE EXPRESS WRITTEN AGREEMENT OF, AND COMPENSATION TO, REI ENGINEERS, INC.
2. DIMENSIONS, DETAIL COMPONENTS AND EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.
3. ONLY ONE DETAIL INDICATOR MAY BE SHOWN FOR EACH TYPE OF ROOF PENETRATION. ALL OTHER SIMILAR PENETRATIONS ARE TO BE FLASHED AS REQUIRED BY THE TYPICAL DETAIL INDICATOR, UNLESS OTHERWISE NOTED.
4. NOTES ARE INTENDED TO PROVIDE TYPICAL LOCATIONS OF WORK. IT IS THE CONTRACTORS RESPONSIBILITY TO QUANTIFY ALL LOCATIONS.

SHEET NOTES:

1. REPLACE SHEET METAL COPINGS.

KEY

- ROOF EDGE
- GUTTER EDGE
- RIDGE
- VALLEY
- STRUCTURAL SLOPE
- CONDUIT
- ROOF OVERHANG
- PIPE PENETRATION
- HVAC UNIT
- EXHAUST FAN
- GRAVITY VENT
- NOT IN CONTRACT
- ELEVATION CHANGE
- ROOF AREA INDICATOR
- NOTE NO.
- DETAIL INDICATOR

ENGINEERS

Engineering solutions for tomorrow®

1927 J.N. Pease Place | Suite 201
Charlotte, NC 28262

SOUTH CAROLINA
CERTIFICATE OF
AUTHORIZATION #1906

www.reiengineers.com

SEALS:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 28529 JEREMIAH WEBSTER

Digitally signed by Jeremiah Webster
DN: C=US, E=jwebster@reiengineers.com, O=REI Engineers, CN=Jeremiah Webster
Date: 2025.03.11 12:55:07-04'00'

PROJECT NAME:

YORK SCHOOL DISTRICT 1 JEFFERSON ELEMENTARY SCHOOL METAL ROOF RE-COVER

1543 CHESTER HWY
YORK, SC 29745

PROJ. NO:

024CLT-079

ISSUE:

NO.	DATE	DESCRIPTION
CD	01-28-25	CONTRACT DOCUMENTS
1	02-11-25	ADDENDUM NO. 1

THIS LINE IS 1 INCH ON THE ORIGINAL DRAWING

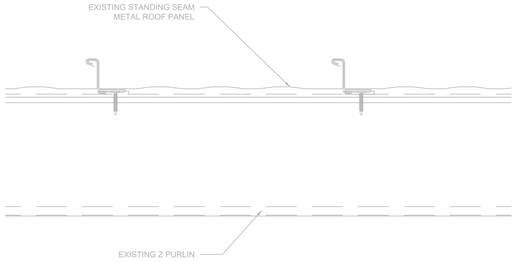
IF IT IS NOT 1 INCH ON THIS PAGE, SCALE DRAWING ACCORDINGLY.

SHEET TITLE:

ROOF PLAN

DRAWING:

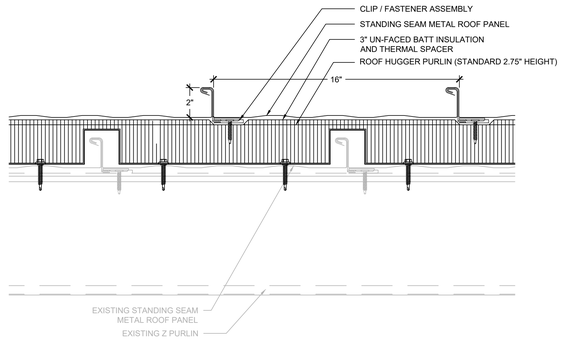
XR101



NOTES:
1. EXISTING ROOF SYSTEM COMPOSITION SHOWN IS BASED UPON RANDOM SAMPLING.
2. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY INFORMATION PROVIDED.
3. REMOVE COMPONENTS DOWN TO THE EXISTING METAL ROOF DECK TO REMAIN.

A EXISTING ROOF SYSTEM

SCALE: 3" = 1'-0"



NOTES:
1. PROVIDE AN APPROVED, TESTED ROOF ASSEMBLY IN ACCORDANCE WITH FM 4474, UL 580 OR UL 1897 TO RESIST THE MINIMUM REQUIRED WIND UPLIFT STRENGTH SPECIFIED ON DRAWING XR101. PROVIDE SUBMITTAL INCLUDING DOCUMENTATION OF TESTED ASSEMBLY ALONG WITH ATTACHMENT REQUIREMENTS FOR THE ASSEMBLY.

B RPLC. ROOF SYSTEM

SCALE: 3" = 1'-0"

Form F3 – Re-Roofing Analysis

Date: February 7, 2025

SUBMITTAL:	☐ Schematic	☐ Design Development	☒ Construction Document

SC CODE EDITION:	2018	ICC CODE EDITION:	2018	ICC A117.1 EDITION:	N/A	OSF GUIDE EDITION:	2023

OTHER CODES/STANDARDS & EDITIONS:
2009 International Energy Conservation Code
2018 International Existing Building Code, Level 1 Alteration

PROJECT DESCRIPTION: [Brief Scope of Work & Include project delivery method (i.e. CMR, etc.)]
Single prime construction for Jefferson Elementary School Roof Re-cover

BASIC RE-ROOFING CODE INFORMATION

DESIGNATED AREAS OF BUILDING	Building Code	Area 1	Area 2	Area 3	Area 4	Area 5
CONSTRUCTION CLASSIFICATION TYPE	Section 602	IIB				
Roof Construction including supporting beams & joist	Table 601	-	-	-	-	-
As Required, Hrs		0 hr.				
As Designed, Hrs		0 hr.				
Testing Agency & Design No. (UL, FM, etc.)		N/A				
Wall/Partition Key Code		N/A				

Version May 2021

Form F3 – Re-Roofing Analysis

STRUCTURAL DESIGN INFORMATION, BUILDING

WIND LOADS	Analysis Procedure (ASCE 7 or SCBC 1609.6)	ASCE 7-16
	Basic design Wind Speed, MPH (3 sec gust IBC Fig 1609.3)	120 = V
	Exposure Category	
	Wind Importance Factor (ASCE 7 Table 1.5-2)	1.15 = Iw
	Internal Pressure Coefficient (ASCE 7)	-1.18 = GCpi
	External Pressure Coefficient (ASCE 7)	-1.00 = GCp

CONSTRUCTION DOCUMENTS

I. Signed, sealed and dated drawings
II. Fully coordinated within and with the Project Manual.

PROJECT MANUAL

I. Signed, sealed and dated
II. Fully coordinated within and with the Construction Documents
- This information shall be part and within the drawing sheet set.

ADDITIONAL QUESTIONS

1. Prepare a site plan showing the life safety plan during construction and any additional details on how the contractor will keep the school administration informed about issues that may affect daily operations in the building	Included
2. Will there be additional weight added to the existing structure?	No
3. What will the insulation values be in areas being reroofed? Confirm the insulation will meet current energy codes.	R-20 minimum
4. Will the existing roof drainage stay the same and meet current code?	Yes
5. What will the new roof assembly consist of?	Standing seam metal roof panels over batt insulation and roof hugger system attached to existing roof assembly
6. What type of inspections will be performed?	REI will perform weekly quality assurance observation site visits
7. Once the project is complete send a copy of the Warranty Letter to OSF.	Agreed
8. Is there roof mounted equipment (mechanical or other) and if new equipment curbs or curb adaptors would be needed.	No

Version May 2021

C RE-ROOF ANALYSIS

SCALE: 3" = 1'-0"

ENGINEERS
Engineering solutions for tomorrow®
1927 J.N. Pease Place | Suite 201
Charlotte, NC 28262
NORTH CAROLINA
ENGINEERING FIRM
LICENSE # C-1520
www.reiengineers.com

SEALS:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 28529 JEREMIAH WEBSTER

Digitally signed by Jeremiah Webster
DN: C=US, E=jwebster@reiengineers.com, O=REI Engineers, CN=Jeremiah Webster
Date: 2025.03.11 12:55:02-04'00'

GENERAL NOTES:
1. THESE DOCUMENTS ARE THE PROPERTY OF REI ENGINEERS, INC. (REI) AND REI RETAINS ALL RIGHTS THEREIN, INCLUDING COPYRIGHTS. IT MAY ONLY BE USED IN A MANNER CONSISTENT WITH REI'S RIGHTS WHILE REI IS PROVIDING SERVICE FOR THE SPECIFIC PROJECT IDENTIFIED OR REFERRED TO HEREIN OR EXTENSIONS THERETO. IT MAY NOT BE USED FOR ANY OTHER PURPOSE EXCEPT WITH THE EXPRESS WRITTEN AGREEMENT OF, AND COMPENSATION TO, REI ENGINEERS, INC.
2. DIMENSIONS, DETAIL COMPONENTS AND EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.

SHEET NOTES:
1. FOR DETAILS, LIGHT LINES REPRESENT EXISTING CONSTRUCTION TO REMAIN AND DARK LINES REPRESENT NEW COMPONENTS TO BE PROVIDED.
2. ANY WHOLE OR PARTIAL INSULATION BOARD OR PORTION OF ANY BOARD WHICH FALLS IN THE PERIMETERS & CORNERS OUTLINED SHALL BE SUBJECT TO THE FASTENING REQUIREMENTS FOR THE HIGHEST WIND ZONE ENCOUNTERED, ACROSS THE ENTIRE BOARD.

PROJECT NAME:

YORK SCHOOL DISTRICT 1 JEFFERSON ELEMENTARY SCHOOL METAL ROOF RE-COVER

1543 CHESTER HWY
YORK, SC 29745

PROJ. NO:

024CLT-079

ISSUE:

NO.	DATE	DESCRIPTION
CD	01-28-25	CONTRACT DOCUMENTS
1	02-11-25	ADDENDUM NO. 1

THIS LINE IS 1 INCH ON
THE ORIGINAL DRAWING

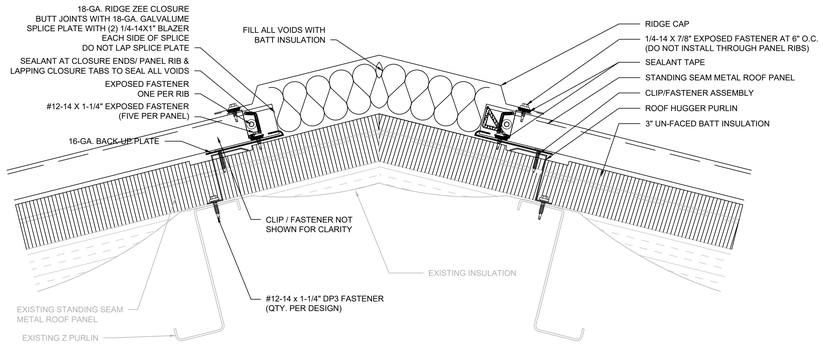
IF IT IS NOT 1 INCH ON THIS PAGE,
SCALE DRAWING ACCORDINGLY.

SHEET TITLE:

ROOF SYSTEMS

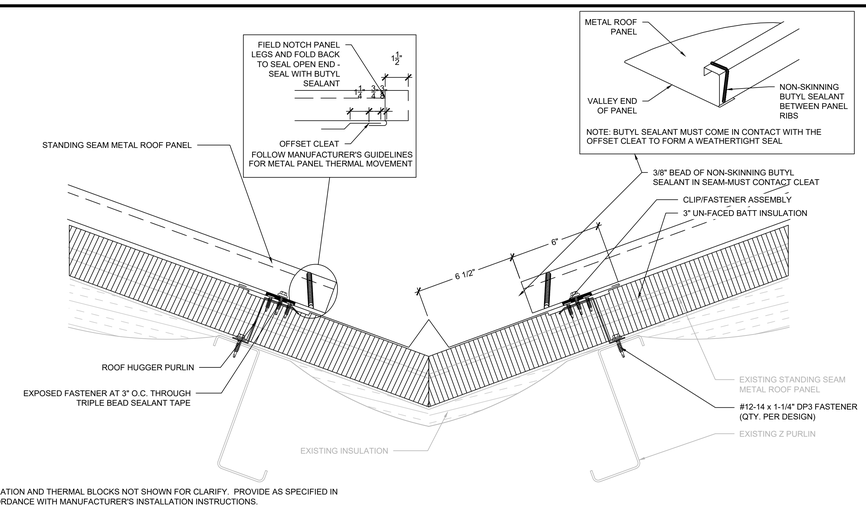
DRAWING:

XR301



1 RIDGE

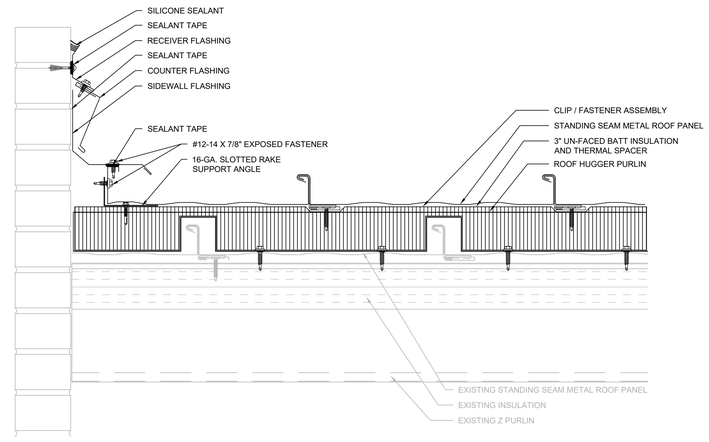
SCALE: 1/4" = 1"



NOTES:
1. INSULATION AND THERMAL BLOCKS NOT SHOWN FOR CLARIFY. PROVIDE AS SPECIFIED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

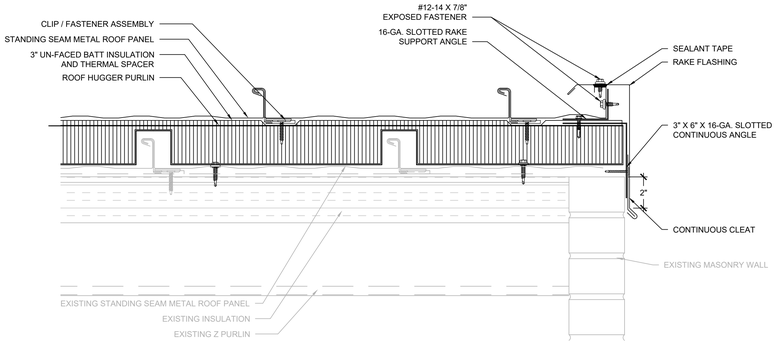
2 VALLEY

SCALE: 3" = 1'-0"



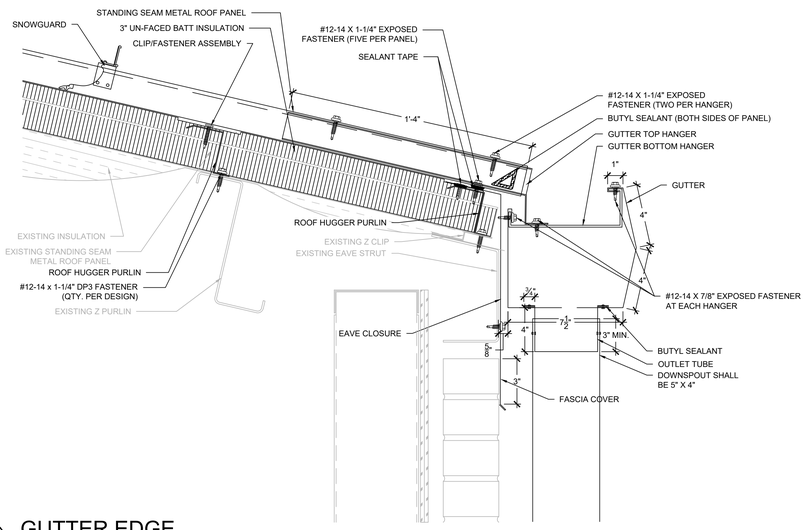
3 SIDEWALL FLASHING

SCALE: 1/4" = 1"



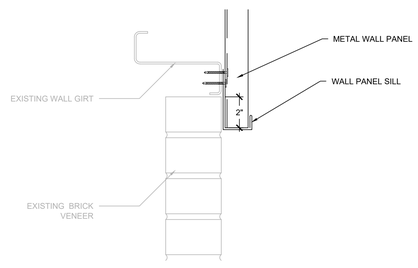
4 RAKE EDGE

SCALE: 1/4" = 1"



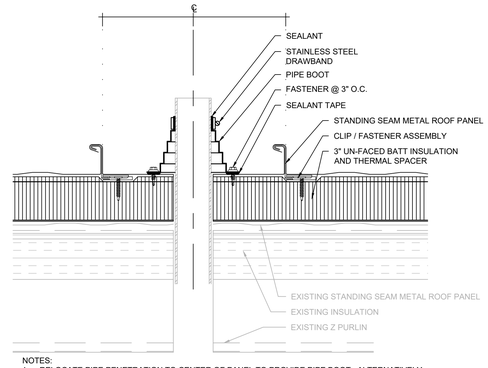
5 GUTTER EDGE

SCALE: 1/4" = 1"



6 WALL PANEL SILL AT MASONRY

SCALE: 1/4" = 1"



NOTES:
1. RELOCATE PIPE PENETRATION TO CENTER OF PANEL TO PROVIDE PIPE BOOT. ALTERNATIVELY, PROVIDE FLAT CURB ACROSS TWO PANELS TO PROVIDE PIPE BOOT FLASHING WITHOUT INTERFERENCE WITH STANDING SEAM METAL ROOF PANEL SEAM.

7 PIPE PENETRATION

SCALE: 3" = 1'-0"

ENGINEERS

Engineering solutions for tomorrow®

1927 J.N. Pease Place | Suite 201
Charlotte, NC 28262

SOUTH CAROLINA
CERTIFICATE OF
AUTHORIZATION #1906

www.reiengineers.com

SEALS:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 28529 JEREMIAH WEBSTER

Digitally signed by Jeremiah Webster
DN: C=US, E=jwebster@reiengineers.com, O=REI Engineers, CN=Jeremiah Webster
Date: 2025.03.11 12:54:57-04'00'

GENERAL NOTES:
1. THESE DOCUMENTS ARE THE PROPERTY OF REI ENGINEERS, INC. (REI) AND REI RETAINS ALL RIGHTS THEREIN, INCLUDING COPYRIGHTS. IT MAY ONLY BE USED IN A MANNER CONSISTENT WITH REI'S RIGHTS WHILE REI IS PROVIDING SERVICE FOR THE SPECIFIC PROJECT IDENTIFIED OR REFERRED TO HEREIN OR EXTENSIONS THERETO. IT MAY NOT BE USED FOR ANY OTHER PURPOSE EXCEPT WITH THE EXPRESS WRITTEN AGREEMENT OF, AND COMPENSATION TO, REI ENGINEERS, INC.
2. DIMENSIONS, DETAIL COMPONENTS AND EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.

SHEET NOTES:
1. FOR DETAILS, LIGHT LINES REPRESENT EXISTING CONSTRUCTION TO REMAIN AND DARK LINES REPRESENT NEW COMPONENTS TO BE PROVIDED.
2. ANY WHOLE OR PARTIAL INSULATION BOARD OR PORTION OF ANY BOARD WHICH FALLS IN THE PERIMETERS & CORNERS OUTLINED SHALL BE SUBJECT TO THE FASTENING REQUIREMENTS FOR THE HIGHEST WIND ZONE ENCOUNTERED, ACROSS THE ENTIRE BOARD.

PROJECT NAME:

YORK SCHOOL DISTRICT 1
JEFFERSON ELEMENTARY SCHOOL
METAL ROOF RE-COVER

1543 CHESTER HWY
YORK, SC 29745

PROJ. NO:

024CLT-079

ISSUE:

NO.	DATE	DESCRIPTION
CD	01-28-25	CONTRACT DOCUMENTS
1	02-11-25	ADDENDUM NO. 1

THIS LINE IS 1 INCH ON
THE ORIGINAL DRAWING

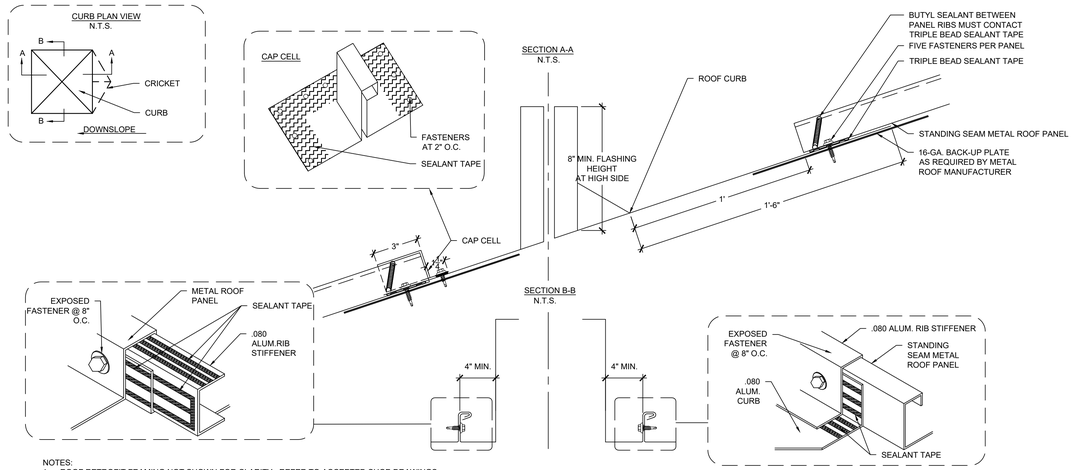
IF IT IS NOT 1 INCH ON THIS PAGE,
SCALE DRAWING ACCORDINGLY.

SHEET TITLE:

DETAILS

DRAWING:

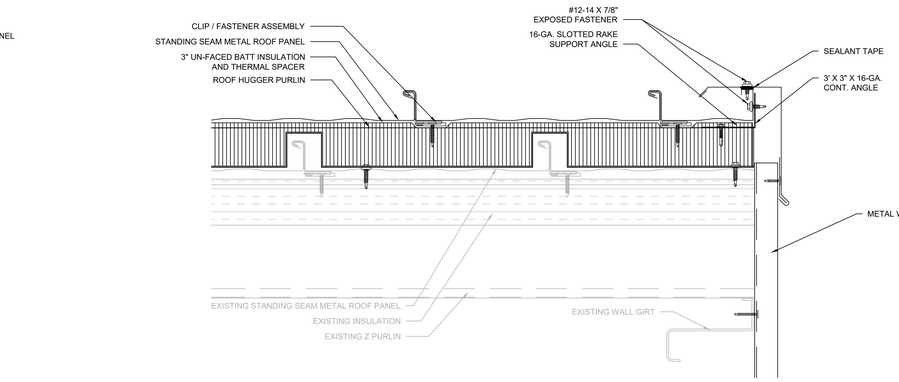
XR501



NOTES:
1. ROOF RETROFIT FRAMING NOT SHOWN FOR CLARITY. REFER TO ACCEPTED SHOP DRAWINGS.

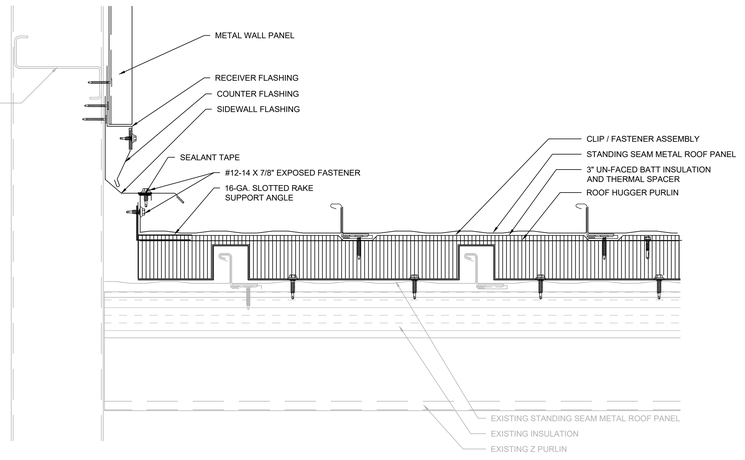
8 MECHANICAL CURB

SCALE: 3" = 1'-0"



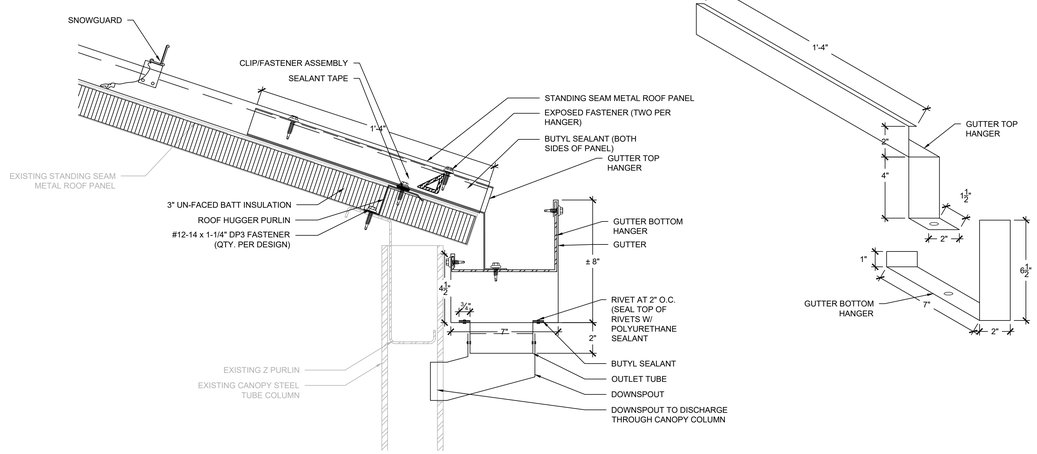
9 RAKE EDGE

SCALE: 1/4" = 1"



10 SIDEWALL FLASHING

SCALE: 1/4" = 1"



11 GUTTER EDGE CANOPIES 1 & 2

SCALE: 1/4" = 1"

REI ENGINEERS
Engineering solutions for tomorrow®
1927 J.N. Pease Place | Suite 201
Charlotte, NC 28262
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION #1906
www.reiengineers.com

SEALS:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 28529 JEREMIAH WEBSTER

Digitally signed by Jeremiah Webster
DN: C=US, E=jwebster@reiengineers.com, O=REI Engineers, CN=Jeremiah Webster
Date: 2025.03.11 12:54:50-04'00'

GENERAL NOTES:
1. THESE DOCUMENTS ARE THE PROPERTY OF REI ENGINEERS, INC. (REI) AND REI RETAINS ALL RIGHTS THEREIN, INCLUDING COPYRIGHTS. IT MAY ONLY BE USED IN A MANNER CONSISTENT WITH REI'S RIGHTS WHILE REI IS PROVIDING SERVICE FOR THE SPECIFIC PROJECT IDENTIFIED OR REFERRED TO HEREIN OR EXTENSIONS THERETO. IT MAY NOT BE USED FOR ANY OTHER PURPOSE EXCEPT WITH THE EXPRESS WRITTEN AGREEMENT OF, AND COMPENSATION TO, REI ENGINEERS, INC.
2. DIMENSIONS, DETAIL COMPONENTS AND EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.

SHEET NOTES:
1. FOR DETAILS, LIGHT LINES REPRESENT EXISTING CONSTRUCTION TO REMAIN AND DARK LINES REPRESENT NEW COMPONENTS TO BE PROVIDED.
2. ANY WHOLE OR PARTIAL INSULATION BOARD OR PORTION OF ANY BOARD WHICH FALLS IN THE PERIMETERS & CORNERS OUTLINED SHALL BE SUBJECT TO THE FASTENING REQUIREMENTS FOR THE HIGHEST WIND ZONE ENCOUNTERED, ACROSS THE ENTIRE BOARD.

PROJECT NAME:

YORK SCHOOL DISTRICT 1
JEFFERSON ELEMENTARY SCHOOL
METAL ROOF RE-COVER

1543 CHESTER HWY
YORK, SC 29745

PROJ. NO:

024CLT-079

ISSUE:

NO.	DATE	DESCRIPTION
CD	01-28-25	CONTRACT DOCUMENTS
1	02-11-25	ADDENDUM NO. 1

THIS LINE IS 1 INCH ON THE ORIGINAL DRAWING

IF IT IS NOT 1 INCH ON THIS PAGE, SCALE DRAWING ACCORDINGLY.

SHEET TITLE:

DETAILS

DRAWING:

XR502