

**Addendum
No. 3**

Date: August 14, 2020
Project: Kent County Family Court Roof Replacement
Project No: MC1002000473

The work herein shall be considered part of the bid documents for the referenced project and carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Acknowledge receipt of addendum on the bid form as indicated.

Questions:

1. *On Drawing A-101, under Construction Keynote Section C-2 refers to drawing page A601. I wasn't given a page A601. Is that a typo and you meant page A-501 that has the details?*

This is a typo. Note should read "See typical roof details on A501 for more information.

2. *Is it possible to use roofing manufactures metal coping system, this way it will also be included with the roof system warranty or is ATAS a requirement?*

Yes. Specification section 07 71 00 has been revised to reflect this.

3. *The counterflashing and surface mounted metals can those be shop fabricate?*

Counterflashing and surface mounted metals may be shop fabricated. Installed products and details must be in accordance with membrane manufacturer's instructions and details as required to maintain the full system warranty.

4. *Just want to confirm, the extent of the mechanical work is to reinsulate all piping on roof and install new condensate drain line, correct?*

Mechanical scope shall be as indicated on the drawings and specs, including reinsulation of piping, installation of new condensate drain, and as otherwise required as means and methods to complete the work of the project.

Additional mechanical scope shall be provided under new Temporary Ducting Allowance described in revised Specification Section 01 21 00 (attached).

5. *Can you provide a product specification for the Kraft paper vapor retarder and adhesive?*

See revised specification section 07 53 00 (attached) for revised vapor barrier specification.

6. *Can you provide a product specification for the cover board?*

See revised specification section 07 53 00 (attached) for revised cover board specification.

7. The specification calls for mechanically fastening the first layer of insulation, adhering the second layer and mechanically fastening the coverboard. We surveyed the roof and found a concrete deck. Will you be revising the specification to be fully adhered for all layers?

See revised specification section 07 53 00 (attached) for revised insulation attachment specification.

Changes to Specifications:

1. *00 41 13 – BID FORM*
 - a. Added Allowance No. 2: Temporary Ducting Allowance.
2. *01 21 00 – ALLOWANCES*
 - a. Added Allowance No. 2: Temporary Ducting Allowance.
3. *07 53 00 – ELASTOMERIC MEMBRANE ROOFING*
 - a. Revised specification section to be a self-adhered roof membrane system.
4. *07 71 00 – ROOF SPECIALTIES*
 - a. Revised paragraph 2.01.A to include additional manufacturers.
 - b. Added paragraph 2.02.A.5.a to indicate the following with regard to metal coping:

Provide product approved by roof membrane manufacturer as required to maintain full system warranty.

Attachments:

1. 00 43 13 – BID FORM
2. 01 21 00 - ALLOWANCES
3. 07 53 00 – ELASTOMERIC MEMBRANE ROOFING
4. 07 71 00 – ROOF SPECIALTIES

END

**KENT COUNTY FAMILY COURT ROOF REPLACEMENT
400 COURT STREET
DOVER, DE 19901
CONTRACT NO. MC1002000473**

BID FORM

ALTERNATES

There are no alternates.

UNIT PRICES

There are no unit prices.

ALLOWANCES

Allowances are included as follows:

Allowance No. 1 – Contingency Allowance: \$10,000 for general contingencies and repairs, the balance of which is to be returned to owner by credit change order at project conclusion.

Allowance No. 2 – Temporary Ducting Allowance: \$20,000 for extending fresh air intake from each air handling unit to beyond the parapet wall.

**KENT COUNTY FAMILY COURT ROOF REPLACEMENT
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CONTRACT NO. MC1002000473**

BID FORM

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for thirty (30) days from the date of opening of bids (60 days for School Districts and Department of Education), and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

(State of Corporation)

Business Address: _____

Witness: _____ By: _____
(SEAL) (Authorized Signature)

(Title)
Date: _____

- ATTACHMENTS**
- Sub-Contractor List
 - Non-Collusion Statement
 - Affidavit of Employee Drug Testing Program
 - Affidavit of Contractor Qualifications
 - Bid Security
 - (Others as Required by Project Manuals)

KENT COUNTY FAMILY COURT ROOF REPLACEMENT
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BID FORM

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 69, Section 6962(d)(10)b of the Delaware Code, the following subcontractor listing must accompany any bid submittal. The bidder must list **in each category** the full name and address (City & State) of the sub-contractor that the bidder will be using to perform the work and provide material for that subcontractor category. Should the bidder's listed subcontractor intend to provide any of their subcontractor category of work through a third-tier contractor, the bidder shall list that third-tier contractor's full name and address (City & State). **If the bidder intends to perform any category of work itself, it must list its full name and address.** For clarification, if the bidder intends to perform the work themselves, the bidder **may not** insert "not applicable", "N/A", "self" or anything other than its own full name and address (City & State). To do so shall cause the bid to be rejected. In addition, the failure to produce a completed subcontractor list with the bid submittal shall cause the bid to be rejected. If you have more than three (3) third-tier contractors to report in any subcontractor category, print out additional page(s) containing the appropriate category, complete the rest of your list of third-tier contractors for that category, notate the addition in parentheses as (CONTINUATION) next to the subcontractor category and an asterisk (*) next to any additional third-tier contractors, and submit it with your bid.

<u>Subcontractor Category</u>	<u>Subcontractor</u>	<u>Address (City & State)</u>	<u>Subcontractors tax-payer ID # or Delaware Business license #</u>
I. Roofing	_____	_____	_____
A.	_____	_____	_____
B.	_____	_____	_____
C.	_____	_____	_____
D.	_____	_____	_____
E.	_____	_____	_____
F.	_____	_____	_____

KENT COUNTY FAMILY COURT ROOF REPLACEMENT
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BID FORM

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date (*to the Office of Management and Budget, Division of Facilities Management*).

All the terms and conditions of MC1002000448 have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE
(TYPED): _____

AUTHORIZED REPRESENTATIVE
(SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

**KENT COUNTY FAMILY COURT ROOF REPLACEMENT
400 COURT STREET
DOVER, DE 19901
CONTRACT NO. MC1002000473**

**AFFIDAVIT
OF
CONTRACTOR QUALIFICATIONS**

We hereby certify that we will abide by the contractor's qualifications outlined in the construction bid specifications for the duration of the contract term.

In accordance with Title 29, Chapter 69, Section 6962(d)(10)b.3 of the Delaware Code, after a contract has been awarded the successful bidder shall not substitute another subcontractor whose name was submitted on the Subcontractor Form except for the reasons in the statute and not without written consent from the awarding agency. Failure to utilize the subcontractors on the list will subject the successful bidder to penalties as outlined in the General Requirements Section 5.2 of the contract.

Contractor Name: _____

Contractor Address: _____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____ . NOTARY PUBLIC _____ .

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

**KENT COUNTY FAMILY COURT ROOF REPLACEMENT
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**AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite, including subcontractors that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____ . NOTARY PUBLIC _____ .

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

**SECTION 01 21 00
ALLOWANCES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance.
- B. Payment and modification procedures relating to allowances.

1.02 RELATED REQUIREMENTS

- A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CONTINGENCY ALLOWANCE

- A. Funds will be drawn from the Contingency Allowance only by Change Order.
- B. Contingency allowance is not to be used for any portion of work indicated in the project documents. The allowance is to be used by written approval only for unforeseen conditions related to correction of existing conditions to conform with project requirements or code requirements.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 ALLOWANCES SCHEDULE

- A. Allowance No. 1 - Contingency Allowance: Include the stipulated sum/price of \$10,000 for use upon Owner's instructions. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.
- B. Allowance No. 2 - Temporary Ducting Allowance: Include the stipulated sum/price of \$20,000 for extending fresh air intake from each air handling unit to beyond the parapet wall. For each fresh air intake, the price shall include removal of hood assembly, installation of plenum box, rectangular duct extension up and over work area to outside off parapet with turn-down for weather protection, bird and insect screen. Ductwork shall be secured to the building. Upon completion of the work, the temporary ductwork shall be removed and the hood assembly shall be reinstalled. Price for this wall shall be by mutually agreed upon lump sum or on a time and materials basis. At closeout of Contract, funds remaining in Temporary Ducting Allowance will be credited to Owner by Change Order

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 07 53 00
ELASTOMERIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Elastomeric roofing membrane, adhered conventional application.
- B. Insulation, flat and tapered.
- C. Cover boards.
- D. Flashings.
- E. Roofing cant strips, stack boots, and walkway pads.

1.02 REFERENCE STANDARDS

- A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- B. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
- C. FM (AG) - FM Approval Guide.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and setting plan for tapered insulation.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact.
- B. Store materials in weather protected environment, clear of ground and moisture.
- C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.
- D. Protect foam insulation from direct exposure to sunlight.

1.05 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- D. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a two year period after Date of Substantial Completion.

- C. Provide twenty year manufacturer's material and labor warranty to cover failure to prevent penetration of water.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. EPDM Membrane Materials: Subject to compliance with the specifications, products from the following manufacturers may be provided:
 - 1. Carlisle Roofing Systems, Inc; Sure-Seal EPDM: www.carlisle-syntec.com/#sle.
 - 2. Firestone Building Products, LLC; FullForce EPDM: www.firestonebpco.com/#sle.
 - 3. Johns Manville; JM EPDM: www.jm.com/#sle.
 - 4. Mul-Hide Products; SA EPDM: www.mulehide.com
 - 5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ROOFING - UNBALLASTED APPLICATIONS

- A. Elastomeric Membrane Roofing: One ply membrane, fully adhered, over vapor retarder and insulation.

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane: Ethylene-propylene-diene-terpolymer (EPDM); non-reinforced; complying with minimum properties of ASTM D4637/D4637M.
 - 1. Thickness: 0.060 inch (60 mil).
 - 2. Sheet Width: 76 inch, minimum; factory-fabricate into largest sheets possible.
 - 3. Adhesive: Self-Adhered.
 - 4. Color: Black.
- B. Vapor Barrier Over Deck:
 - 1. High density polyethylene sheet with SBS modified bitumen adhesive.
 - 2. Attachment: Self adhering.
 - 3. Product as recommended by roof manufacture for full system warranty.
- C. Flashing Membrane: Self-curing, non-reinforced membrane composed of nonvulcanized EPDM rubber, complying with ASTM D 4811 Type II, and with the following properties:
 - 1. Thickness: 0.055" (1.4 mm)
 - 2. Color: Same as field membrane
- D. Self-Adhesive Flashing Membrane: Semi-cured 45 mil EPDM membrane laminated to 35 mil (0.9 mm) EPDM tape adhesive;

2.04 DECK SHEATHING AND COVER BOARDS

- A. Faced Polyisocyanurate Cover Board: High compressive strength board, complying with ASTM C1289, Type II, Class 4 - Faced with coated or uncoated polymer-bonded glass fiber mat facers on both major surfaces of the core foam. This product is used at a maximum thickness of 1/2 inch (12.7 mm).
 - 1. Board Thickness: 1/2 inch.
 - 2. Insulation Thermal Resistance, R-value: 1.0, nominal.
 - 3. Manufacturers:
 - a. Firestone Building Products, LLC; IsoGard HD.
 - b. Carlisle Roofing Systems, Inc; SecureShield HD.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 INSULATION

- A. Polyisocyanurate (ISO) Board Insulation: Rigid cellular foam, complying with ASTM C1289.
 - 1. Classifications:
 - a. Type II:

- 1) Class 1 - Faced with glass fiber reinforced cellulosic felt facers on both major surfaces of core foam.
- 2) Compressive Strength: Classes 1-2-3, Grade 2 - 20 psi (138 kPa), minimum.
- 3) R-Value: 5.7 per inch.
2. Board Size: 48 by 96 inch.
3. Board Thickness: 1.5 inch.
4. Tapered Board: Slope as indicated; minimum thickness 1/2 inch; fabricate of fewest layers possible.
5. Board Edges: Square.
6. Manufacturers:
 - a. Dow Chemical Company: www.dow.com/#sle.
 - b. Carlisle Syntec.
 - c. Firestone.
 - d. GAF; EnergyGuard Polyiso Insulation: www.gaf.com/#sle.
 - e. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 ACCESSORIES

- A. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; elastomeric material compatible with membrane.
- B. Cant and Edge Strips: Wood fiberboard, compatible with roofing materials; cants formed to 45 degree angle.
- C. Sheathing Joint Tape: Paper type, 4 inch wide, self adhering.
- D. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.
- E. Insulation Fasteners: Appropriate for purpose intended.
 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- F. Adhesive Primer: Synthetic rubber based primer formulated for compatibility with EPDM membrane and tape adhesive, with VOC content less than 2.1 lb/gal (250 g/L).
- G. Seam Edge Treatment: EPDM rubber-based sealant, formulated for sealing exposed edges of membrane at seams.
- H. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- I. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing.
- J. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed.
- K. Strip Reglet Devices: Galvanized steel, maximum possible lengths per location, with attachment flanges.
- L. Insulation Perimeter Restraint: Stainless steel edge device configured to restrain insulation boards in position and provide top flashing over ballast.
- M. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane. Walkway pads shall be installed with a 3" gap between each other.
 1. Composition: Roofing membrane manufacturer's standard.
 2. Size: 30 by 30 inch.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.

- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 CONCRETE DECK PREPARATION

- A. Fill surface honeycomb and variations with latex filler.
- B. Confirm dry deck by moisture meter with 12 percent moisture maximum.

3.03 VAPOR RETARDER AND INSULATION - UNDER MEMBRANE

- A. All deck/deck cover substrates (except metal decks) must be primed prior to application. Use only primer supplied by membrane manufacturer.
- B. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under cant strips and blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- C. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
- D. Attachment of Insulation: Embed insulation in adhesive in full contact, in accordance with roofing and insulation manufacturers' instructions.
- E. Cover Boards: Mechanically fasten cover boards in accordance with roofing manufacturer's instructions and FM (AG) Factory Mutual requirements.
- F. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.
- G. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- H. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- I. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- J. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4" (6 mm). Fill gaps greater than 1/4" (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4" (6 mm).
- K. Do not apply more insulation than can be covered with membrane in same day.

3.04 SELF ADHERING SINGLE-PLY MEMBRANE INSTALLATION

- A. Substrates must be clean, dry and free of foreign material which could inhibit adhesion.
 - 1. Install EPDM membrane only when ambient and substrate temperatures are 20 °F (-7 °C) minimum and rising. Do not install below this minimum temperature.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details. NOTE: All seams must be primed for proper adhesion and finished using sealant as required by the manufacturer's application guide and details.
 - 1. Once the membrane has relaxed in place a minimum of 30 minutes (longer in colder weather), and the seam positions are aligned, carefully fold back the leading edge of the

membrane at one end to expose the release liner. Do not fold the length of the roll in half to remove the liner.

2. Starting from the center split of the exposed release liner, remove both halves of the liner at 45° angles from the center of the sheet back beyond the membrane edge. Be sure to pull enough of the release liner to hold below the membrane. Remove at least 5' (1.5 m) of release liner from one end of the sheet and adhere it to the substrate. The removed liner should extend at a 45° angle beyond the edges of the membrane. Do not remove the 4" (102 mm) strip or release liner along the seam edge at this time.
 3. Keeping the membrane flat and secured, and the seam overlap aligned, continue removing the release liner at a 45° angle along the entire length of the sheet; up to 100' (30 m). Pulling the release liner at an alternate angle can cause the sheet to move and may trap air. The two halves of the release liner should be pulled out at the same time by two people. Keep the release liner as close to the roof surface as possible during removal. NOTE: Removal of the liner and any handling of the exposed adhesive should be completed by two persons minimum.
 4. To initiate adhesion, use a stiff bristled broom and apply downward pressure across the installed membrane. Broom the membrane from the center of the sheet working toward the edge. Repeat the process on the other half of the sheet.
 5. Remove the 4" (102 mm) strip of release liner from the edge overlapping the lower sheet of EPDM. Peel the liner at a 45° angle to the seam edge and then along the length of the seam, making sure there is sufficient contact between the two membranes layers.
 6. Use a 1½" to 2" (38 mm to 51 mm) wide silicone roller to roll the entire seam at a right angle toward the outer seam and then along the length of the seam.
 7. Roll the installed membrane with a weighted roller (5 lb per lineal inch) across the width of the sheet to ensure full contact with the substrate.
- C. Fold back the remaining half of membrane and repeat the preceding steps.
- D. Edge Securement
1. Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12" (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
 - a. Exceptions: Round pipe penetrations less than 18" (460 mm) in diameter and square penetrations less than 4" (200 mm) square.
 - 1) Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

3.05 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
 1. Follow roofing manufacturer's instructions.
 2. Remove protective plastic surface film immediately before installation.
 3. Install water block sealant under the membrane anchorage leg.
 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.

7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Scuppers: Set in sealant and secure to structure; flash as recommended by manufacturer.
- D. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8" (200 mm) high above membrane surface.
 1. Use the longest practical flashing pieces.
 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
 4. Provide termination directly to the vertical substrate as shown on roof drawings.
- E. Roof Drains:
 1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
 2. Position membrane, then cut a hole for roof drain to allow $\frac{1}{2}$ to $\frac{3}{4}$ " (12 to 19 mm) of membrane to extend inside clamping ring past drain bolts.
 3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
 4. Apply sealant on top of drain bowl where clamping ring seats below the membrane
 5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.
- F. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
 1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
 2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 2" (50 mm) deep, with at least 1" (25 mm) clearance from penetration, sloped to shed water.
 3. Structural Steel Tubing: If corner radii are greater than $\frac{1}{4}$ " (6 mm) and longest side of tube does not exceed 12" (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
 4. Flexible and Moving Penetrations: Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.

3.06 FINISHING AND WALKWAY INSTALLATION

- A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.
- B. Walkway Pads: Adhere to the roofing membrane, spacing each pad at minimum of 1" (25 mm) and maximum of 3" (75 mm) from each other to allow for drainage.
 1. If installation of walkway pads over field fabricated splices or within 6" (150 mm) of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6" (150 mm) on either side.
 2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

3.07 CLEANING

- A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.
- B. Remove bituminous markings from finished surfaces.

- C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.
- D. Repair or replace defaced or damaged finishes caused by work of this section.

3.08 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 71 00
ROOF SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Manufactured roof specialties, including copings.

1.02 REFERENCE STANDARDS

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
- B. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems.
- C. NRCA (RM) - The NRCA Roofing Manual.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on shape of components, materials and finishes, anchor types and locations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Roof Edge Flashings and Copings:
 - 1. ATAS International, Inc: www.atas.com/#sle.
 - 2. Metal-Era Inc: www.metalera.com/#sle.
 - 3. OMG Roofing Products: www.omgroofing.com/#sle.
 - 4. Carlisle Syntec.
 - 5. Firestone.
 - 6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 COMPONENTS

- A. Copings: Factory fabricated to sizes required; mitered, welded corners; concealed fasteners.
 - 1. Configuration: Concealed continuous hold down cleat at both legs; internal splice piece at joints of same material, thickness and finish as cap; concealed stainless steel fasteners.
 - 2. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test method RE-3 to positive and negative design wind pressure as defined by applicable local building code.
 - 3. Material: Formed aluminum sheet, 0.050 inch thick, minimum.
 - 4. Color: Match Existing.
 - 5. Manufacturers:
 - a. Provide product approved by roof membrane manufacturer as required to maintain full system warranty.

2.03 FINISHES

- A. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as selected from manufacturer's standard colors.

2.04 ACCESSORIES

- A. Sealant for Joints in Linear Components: As recommended by component manufacturer.
- B. Adhesive for Anchoring to Roof Membrane: Compatible with roof membrane and approved by roof membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that deck, curbs, roof membrane, base flashing, and other items affecting work of this Section are in place and positioned correctly.

3.02 INSTALLATION

- A. Install components in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Seal joints within components when required by component manufacturer.
- C. Anchor components securely.
- D. Coordinate installation of components of this section with installation of roofing membrane and base flashings.
- E. Coordinate installation of sealants and roofing cement with work of this section to ensure water tightness.

END OF SECTION