

**SECTION 00 91 14  
ADDENDUM NUMBER 004**

**DATE:** MARCH 22, 2021

**PROJECT:** CRAIGHEAD COUNTY PUBLIC LIBRARY – CHILDREN’S ADDITION AND RENOVATION

**OWNER:** Craighead County Jonesboro Public Library

**ARCHITECT:** Cooper Mixon Architects, PLLC

**TO: BIDDERS:**

This Addendum forms a part of the Contract Documents and modifies the original Procurement Documents dated February 8, 2021, with amendments and additions noted below.

Acknowledge receipt of this Addendum in the space provided in the bid form. Failure to do so may disqualify the bidder.

This Addendum consists of the following documents and revisions:

**CHANGES TO THE PROJECT MANUAL - INTRODUCTORY REQUIREMENTS, PROCUREMENT REQUIREMENTS AND CONTRACTING REQUIREMENTS:**

1. Insert Section 00 91 14 - (This) Addendum Number 004 issued with this Addendum.

**CHANGES TO THE PROJECT MANUAL – SPECIFICATIONS**

2. Replace Section 07 54 23 – Thermoplastic Polyolefin Roofing (TPO) with revised Section issued with this Addendum.

**CLARIFICATION**

3. This Addendum 004 must be acknowledged on the Bid Form by writing it in.
4. The following roofing manufacturers are acceptable alternates provided they meet all requirements, including installer qualifications, in the revised specification Section 07 54 23 issued with this Addendum.
  - I. Johns Manville
  - II. Mulehide

**CHANGES TO DRAWINGS:**

5. No changes.

**END OF SECTION**

This page intentionally left blank

**SECTION 07 54 23**  
**THERMOPLASTIC-POLYOLEFIN ROOFING (TPO)**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Thermoplastic membrane roofing system, including all components specified.
- B. Disposal of demolition debris and construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Asbestos-containing materials may be present in the existing roofing system. Remove, handle, and dispose of asbestos-containing material in manner complying with all applicable federal, state, and local regulations.
- D. Asbestos containing materials may be present. If discovered, it must be removed by a professional abatement contractor.
- E. Comply with the published recommendations and instructions of the roofing membrane manufacturer, at <http://manual.fsbp.com>.
- F. Commencement of work by Contractor shall constitute acknowledgement by Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Wood nailers associated with roofing and roof insulation.
- B. Section 07 62 00 - Sheet Metal Flashing and Trim: Formed metal flashing and trim items associated with roofing.

**1.03 REFERENCE STANDARDS**

- A. ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products 2019.
- B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing 2017.
- C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board 2020.
- D. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer 2016.
- E. ASTM D638 - Standard Test Method for Tensile Properties of Plastics 2014.
- F. ASTM D1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting 2013.
- G. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- H. ASTM D4601/D4601M - Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing 2004 (Reapproved 2020).
- I. ASTM D6878/D6878M - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing 2019.
- J. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2020.
- K. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C 2019a.

- L. FM 4470 - Approval 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 2016.
- M. FM DS 1-28 - Wind Design 2016.
- N. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components 2016, with Editorial Revision (2020).
- O. PS 1 - Structural Plywood 2009.

#### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty.
  - 1. Require attendance with all parties directly influencing the quality of roofing work or affected by the performance of roofing work.
  - 2. Notify Architect well in advance of meeting.

#### 1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data:
  - 1. Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
    - a. Technical data sheet for roof membrane.
    - b. Technical data sheet for each insulation type.
    - c. Technical data sheet for each cover board type.
  - 2. Where UL or FM requirements are specified, provide documentation that shows that the roofing system to be installed is UL-Classified or FM-approved, as applicable; include data itemizing the components of the classified or approved system.
  - 3. Installation Instructions: Provide manufacturer's instructions to installer, marked up to show exactly how all components will be installed; where instructions allow installation options, clearly indicate which option will be used.
- C. Shop Drawings: Provide:
  - 1. The roof membrane manufacturer's standard details customized for this project for all relevant conditions, including flashings, base tie-ins, roof edges, terminations, expansion joints, penetrations, and drains.
  - 2. For tapered insulation, provide project-specific layout and dimensions for each board.
- D. Specimen Warranty: Submit prior to starting work.
- E. Installer Qualifications: Letter from manufacturer attesting that the roofing installer meets the specified qualifications.
- F. Pre-Installation Notice: Copy to show that manufacturer's required Pre-Installation Notice (PIN) has been accepted and approved by the manufacturer.
- G. Executed Warranty in Owner's name and registered with the manufacturer.

#### 1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Roofing installer shall have the following:
  - 1. Current Firestone Red Shield Licensed Contractor status with Master Contractor status at least once in the last three years.
  - 2. Current approval, license, or authorization as applicator by the manufacturer.
  - 3. Fully staffed office within 100 miles of the job site.
  - 4. At least five years of experience in installing specified system.
  - 5. Capability to provide payment and performance bond to building owner.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

### 1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.
- C. Keep combustible materials away from ignition sources.

### 1.08 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- C. Warranty: ~~Firestone Limited~~ Full System Warranty covering membrane, roof insulation, cover board, and other indicated -components of the system, for the term indicated and from date of final acceptance.
  - 1. Warranty Period: 20-year from date of final acceptance.
  - 4-2. Limit of Liability: No dollar limitation, non pro-rated.
  - 2-3. Scope of Coverage: Repair leaks in the roofing system caused by:
    - a. Ordinary wear and tear of the elements.
    - b. Manufacturing defect in Firestone membrane manufacturer's brand materials.
    - c. Defective workmanship used to install these materials.
    - d. Damage due to winds up to 72 mph.
  - 3-4. Not Covered:
    - a. Damage due to winds in excess of 72 mph.
    - b. Damage due hurricanes or tornadoes.
    - c. Hail.
    - d. Intentional damage.
    - e. Unintentional damage due to normal rooftop inspections, maintenance, or service.
- D. Insulation Warranty: Separate ~~Firestone ISO 95+~~ Insulation Warranty with warranty term coinciding with ~~Red Shield Full System~~ Warranty.
  - 1. Limit of Liability: No dollar limitation
  - 2. Scope of Coverage: Provide replacement for insulation that warps, bows, or is on the point of causing a roof leak as a result of manufacturing defect.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Basis of Design Manufacturer - Roofing System: Ultra Ply TPO Flex Adhered by Firestone Building Products LLC, Carmel, IN: www.firestonebpco.com/#sle, or approved equal.
  - 1. Roofing systems manufactured by others are acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
    - a. Specializing in manufacturing the roofing system to be provided.
    - b. Minimum ten years of experience manufacturing the roofing system to be provided.
  - 2. Roofing systems manufactured by the companies listed below are acceptable provided they are completely equivalent in materials and warranty conditions:
    - 1) Carlisle.
    - 2) Versico.
- B. Manufacturer of Insulation and Cover Boards: Same manufacturer as roof membrane.
- C. Substitutions: See Section 01 60 00 - Product Requirements.

### 2.02 ROOFING SYSTEM DESCRIPTION

- A. Roofing System: Thermoplastic polyolefin (TPO) single-ply membrane.
  - 1. Membrane Attachment: Fully adhered.

2. Warranty: Full system warranty; Firestone 20 year Red Shield Limited Warranty covering membrane, roof insulation, membrane accessories, and metal edging and coping.
3. Comply with applicable local building code requirements.
4. Provide assembly having Underwriters Laboratories, Inc. (UL) Class A Fire Hazard Classification.
5. Provide assembly complying with Factory Mutual Corporation (FM) Roof Assembly Classification, FM DS 1-28 and FM DS 1-29, and meeting minimum requirements of FM 1-90 wind uplift rating.

~~B. Roofing System Components: Listed in order from the top of the roof down:~~

- ~~1. Membrane: Thickness as specified.~~
- ~~2. Base Sheet Over Insulation: cold adhesive attached.~~

~~3.B. Cover Board: Gypsum-based board, 1/4-1/2 inch thick; mechanically fastened; attached per manufacturer's recommendations.~~

~~4.C. Insulation:~~

- ~~5. Maximum Board Thickness: 3 inches; use as many layers as necessary; stagger joints in adjacent layers.~~
- ~~a.1. Polyisocyanurate Insulation R-value of 20 (LTTR), minimum. Maximum board thickness not to exceed 2-inches per layer.~~
- ~~2. Attachment: Polyisocyanurate foam board, non-composite; mechanically fastened.~~
- ~~b.3. Tapered: Slope as indicated; provide minimum R-value at thinnest point; place tapered layer on bottom.~~
- ~~6.4. Crickets: Tapered insulation of same type as specified for top layer; slope as indicated.~~

## 2.03 TPO MEMBRANE MATERIALS

- A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D6878/D6878M, with polyester weft inserted reinforcement and the following additional characteristics:
  1. Thickness: 0.060 inch plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch plus/minus 10 percent.
  2. Sheet Width: Provide the widest available sheets to minimize field seaming.
  3. Puncture Resistance: 265 lbf, minimum, when tested in accordance FTM 101C Method 2031.
  4. Solar Reflectance: 0.79, minimum, when tested in accordance with ASTM C1549.
  5. Color: White.
  6. Acceptable Product: UltraPly TPO by Firestone, or approved equal.
- B. Membrane Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.
- C. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches wide.
- D. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.
  1. Thickness: 0.060 inch plus/minus 10 percent.
  2. Tensile Strength: 1550 psi, minimum, when tested in accordance with ASTM D638 after heat aging.
  3. Elongation at Break: 650 percent, minimum, when tested in accordance with ASTM D638 after heat aging.
  4. Tearing Strength: 12 lbf, minimum, when tested in accordance with ASTM D1004 after heat aging.
  5. Color: White.
  6. Acceptable Product: UltraPly TPO Flashing by Firestone, or equal by approved membrane manufacturer.

- E. Tape Flashing: 5-1/2--inch nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch nominal; TPO QuickSeam Flashing by Firestone, or equal by approved membrane manufacturer.
- F. Bonding Adhesive: Neoprene and SBR rubber blend, formulated for compatibility with the membrane other substrate materials, including masonry, wood, and insulation facings; UltraPly Bonding Adhesive by or equal by approved membrane manufacturer.
- G. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing; Pourable Sealer by Firestone, or equal by approved membrane manufacturer.
- H. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.
- I. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches wide by 0.10 inch thick; Firestone Termination Bar by Firestone, or equal by approved membrane manufacturer.
- J. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed; UltraPly TPO Cut Edge Sealant by Firestone, or equal by approved membrane manufacturer.
- K. General Purpose Sealant: EPDM-based, one part, white general purpose sealant; UltraPly TPO General Purpose Sealant by Firestone, or equal by approved membrane manufacturer.
- L. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.; UltraPly TPO Small and Large Pipe Flashing by Firestone, or equal by approved membrane manufacturer.
- M. Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed; Water Block Seal, or equal by approved membrane manufacturer by Firestone.
- N. Roof Walkway Pads: Non-reinforced TPO walkway pads, 0.130 inch by 30 inches by 40 feet long with patterned traffic bearing surface; UltraPly TPO Walkway Pads by Firestone, or equal by approved membrane manufacturer.

## **~~2.04 VAPOR RETARDER MATERIALS~~**

~~A.O. Base Sheet: Firestone MB Base Sheet; high performance, asphalt coated, fiberglass reinforced, roofing base sheet complying with ASTM D4601/D4601M Type II.~~

## **2.052.04 ROOF INSULATION AND COVER BOARDS**

- A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM C1289 Type II Class 1, with the following additional characteristics:
  - 1. Thickness: As indicated on drawings.
  - 2. Size: 48 inches by 96 inches, nominal.
    - a. Exception: Insulation to be attached using adhesive or asphalt may be no larger than 48 inches by 48 inches, nominal.
  - ~~3. R value (LTTR):
    - a. 4.0 inch Thickness: 25.0, minimum.~~
  - ~~4.3. Compressive Strength: 20 psi when tested in accordance with ASTM C1289.~~
  - ~~5.4. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.~~
  - ~~6.5. Recycled Content: 19 percent post-consumer and 15 percent pre-consumer (post-industrial), average.~~
  - ~~7.6. Acceptable Product: ISO 95+ GL Polyisocyanurate Insulation by Firestone, or equal by approved membrane manufacturer.~~
- B. Gypsum-Based Cover Board: Non-combustible, water resistant gypsum core with embedded glass mat facers, complying with ASTM C1177/C1177M, and with the following additional characteristics:
  - 1. Size: 48 inches by 96 inches, nominal.
    - a. Exception: Board to be attached using adhesive or asphalt may be no larger than 48 inches by 48 inches, nominal.

2. Thickness: ~~1/2- inch thick or as indicated on drawings. As indicated elsewhere.~~
  3. Surface Water Absorption: 2.5 g, maximum, when tested in accordance with ASTM C473.
  4. Spanning Capability: Recommended by manufacturer for following minimum flute spans:
  5. Surface Burning Characteristics: Flame spread index of 0 (zero), smoke developed index of 0 (zero), when tested in accordance with ASTM E84.
  6. Combustibility: Non-combustible, when tested in accordance with ASTM E136.
  7. Factory Mutual approved for use with FM 1-60 and 1-90 rated roofing assemblies.
  8. Mold Growth Resistance: Zero growth, when tested in accordance with ASTM D3273 for minimum of 4 weeks.
  9. Acceptable Product: Georgia-Pacific DensDeck Prime Roof Guard.
- C. Insulation Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.

#### **2-062.05 ACCESSORIES**

- A. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.
1. Width: 3-1/2 inches, nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it.
  2. Thickness: Same as thickness of roof insulation.

### **PART 3 INSTALLATION**

#### **3.01 GENERAL**

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
- D. Perform work using competent and properly equipped personnel.
- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth, and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F.
- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
  1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
  2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen, adhesives, and sealants within the range of wind-borne overspray.
  3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
- I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.



### 3.02 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

### 3.03 PREPARATION

- ~~A. Remove all of the existing roof system down to the roof deck including all existing composition base flashings. Dispose of all materials properly. Perform asbestos removal in accordance with federal, state and local regulations and dispose of waste in legal manner.~~
  - ~~1. At penetrations, remove all existing flashings, including lead, asphalt, mastic, etc.~~
  - ~~2.1. At walls, curbs, and other vertical and sloped surfaces, remove loose and unsecured flashings; remove mineral surfaced and coated flashings; remove excessive asphalt to provide a smooth, sound surface for new flashings.~~
- B. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.
- C. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- D. Fill all surface voids in the immediate substrate that are greater than 1/4 inch wide with fill material acceptable insulation to membrane manufacturer.
- E. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.
- F. Wood Nailers: Provide wood nailers at all perimeters and other locations where indicated on the drawings, of total height matching the total thickness of insulation being used.

### ~~3.04 VAPOR RETARDER~~

- ~~A. Before installing insulation install vapor retarder directly over the deck.~~
- ~~B. Ensure that all penetrations and edge conditions are sealed to prevent moisture and air drive into the roofing system.~~

### ~~3-053.04~~ INSULATION AND COVER BOARD INSTALLATION

- A. Install insulation in a manner that will not compromise the vapor retarder integrity.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
- C. Lay roof insulation in courses parallel to roof edges.
- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch. Fill gaps greater than 1/4 inch with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch.
- E. Mechanical Fastening: Using specified fasteners and insulation plates engage fasteners through insulation into deck to depth and in pattern required by Factory Mutual for FM Class specified in PART 2 and membrane manufacturer, whichever is more stringent.

### ~~3-063.05~~ SINGLE-PLY MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.

- C. 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.
- D. Install membrane adhered to the substrate, with edge securement as specified.
- E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.
- F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
  - 1. Exceptions: Round pipe penetrations less than 18 inches in diameter and square penetrations less than 4 inches square.
  - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

### **3-073.06 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. Existing Scuppers: Remove scupper and install new scupper.~~

~~D.C. Roofing Expansion Joints: Install as shown on drawings and as recommended by roofing manufacturer.~~

~~E.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 inches 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.

~~F.E. Roof Drains:~~

~~1. Existing Drains: Remove all existing flashings, drain leads, roofing materials and cement from the drain; remove clamping ring.~~

~~2.1. 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.~~

~~3.2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch of membrane to extend inside clamping ring past drain bolts.~~

- 4.3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
- 5.4. Apply sealant on top of drain bowl where clamping ring seats below the membrane.
- 6.5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.

**G.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 inches deep, with at least 1 inch clearance from penetration, sloped to shed water.
- 3. Structural Steel Tubing: If corner radii are greater than 1/4 inch and longest side of tube does not exceed 12 inches, 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.

### **3-083.07 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 1.0 inch and maximum of 3.0 inches from each other to allow for drainage.
  - 1. If installation of walkway pads over field fabricated splices or within 6 inches 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 inches 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.

### **3-093.08 FIELD QUALITY CONTROL**

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.

### **3-103.09 CLEANING**

- A. Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen, adhesives, sealants, and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

### **3-113.10 PROTECTION**

- A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

**END OF SECTION**