

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION 07 54 23 - ROOFING AND SHEET METAL

PART 1 GENERAL

1.1 SUBMITTALS

- A. Shop drawings; including all termination details
- B. Catalogue cuts for:
 - 1. Roofing membrane
 - 2. Insulation and tapered cants
 - 3. Fasteners
 - 4. Special vapor barrier
- C. Color Charts/Samples for roofing related sheet metals
- D. Provide a letter from the Roof System Manufacturer that the proposed roofing system meets all wind uplift, fire, and warranty requirements of the specification.

1.2 DESIGN CRITERIA

- A. Uplift: Roofing per ASCE 7 and Perimeter Flashing per ANSI/SPRI ES-1 Guideline.

1.3 PRE-ROOFING CONFERENCE

- A. Mock-Up: Prior to the installation of any roofing materials, a Pre-Roofing Conference shall take place to construct a representative sample of the wall-to-roof juncture; complete with special vapor barriers. The completed sample shall remain on-site as a standard for the Project.

1.4 WARRANTY

- A. In lieu of the requirements of the General Conditions of the Construction Contract, provide a 10-Year Total System Warranty.
- B. The roofing subcontractor shall warranty the refrigerated portions of the building to be free of frost causing vapor leaks for a two-year period from the date of Certificate of Occupancy.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Mechanically-Fastened: Provide all necessary anchorage to fully secure insulation and roofing material for the specified wind uplift.
- B. The roof system manufacturer's standard specifications, for the selected system, shall become a part of this specification as though fully included herein.

2.2 SPECIAL REQUIREMENTS

- A. Roofing subcontractor shall provide a full-time roofing superintendent or foreman who is experienced and knowledgeable in cold-storage construction. This superintendent or foreman shall be on-site at all times when work is being performed and remain on the project from start to finish.
- B. Roofing subcontractor shall provide roof edge warning line for entire perimeter of area being roofed. In addition to roofing work mobilizations; include (1) extra mobilization for

installation of warning line prior to start of roofing work and one (1) extra mobilization for removal of warning line after all other trades have completed their rooftop work. Regarding duration, assume warning line does not come down until substantial completion of project.

2.3 ROOFING MEMBRANE AND ACCESSORIES

- A. Loose-laid, mechanically-fastened, 60mil single-ply, reinforced, white, TPO membrane roofing system. Approved manufacturers include:
 - 1. Firestone
 - 2. Carlisle Syntec Systems
 - 3. Johns Manville
 - 4. GENFLEX
 - 5. Versico Roofing Systems
 - 6. or pre-approved equal
- B. Furnish and install all accessories required for a complete roofing system. This includes, but is not limited to: bonding adhesives, splicing cement, membrane cleaner, reinforced flashing, sealants, water cut-off mastic, fastening plates and fasteners, prefabricated pipe seals, preformed corners, etc.

2.4 ROOF INSULATION

- A. Flat and tapered roof insulation shall be polyisocyanurate; having the following properties:
 - 1. Compressive Strength: 25 psi
 - 2. FM Class 1 Approval for steel roof-deck construction
- B. Total thickness of roof insulation shall be as shown on the Drawings.

2.5 ROOFING RELATED SHEET METALS

- A. Pre-Finished, Specially-Formed Metal: Minimum 24 gauge galvanized and pre-painted (two-coats) sheet steel. ASTM A446, Grade "A" material, zinc-coated in accordance with ASTM A525, G-90. Low to medium gloss baked KYNAR finish, with the reverse sheet face coated for added protection.
- B. Galvanized Metal Items: ASTM A446, Grade "A" material, zinc-coated in accordance with ASTM A525, G-90. Parapet caps, parapet and curb flashing, gutters, etc shall be 26 gauge. Leaders, leader boxes, scuppers, etc shall be 24 gauge.
- C. Gravel Stops: Butt end joints shall be set over concealed splice plates. Bottom edge shall be fastened by hooking over a continuous cleat edge strip. Cleat shall be set in mastic and fastened to wall panels.
- D. Downspouts: Open-faced troughs with straps at 4'-0" o.c.
- E. Reglets: 24 gauge, galvanized.

2.6 ACCESSORIES

- A. Provide 18" x 18" precast concrete splash blocks at the bottom of all downspouts, unless they are being directly connected to an underground drainage system. When downspouts are connected to an underground drainage system, provide a fitting to connect downspout to underground pipe stub. This shall either be a fabricated metal piece, construction matching downspout, or a pre-fabricated boot when possible.
- B. Special vapor barrier for wall-roof juncture shall be non-reinforced peel and seal flashing

as offered as an accessory by the membrane manufacturer. Asphaltic peal and seal products are not allowed.

2.7 FOAM-IN-PLACE INSULATION

- A. Two-component spray polyurethane foam system, Froth-Pak by Dupont or equal.

PART 3 EXECUTION

3.1 INSULATION PLACEMENT

- A. Insulation shall be installed in strict accordance with manufacturer's specifications.
- B. No more insulation shall be laid than can be covered by roofing that same day.
- C. Insulation shall be placed with tight joints (no gaps) and with end joints staggered 1/2 board length; succeeding layers shall be laid with joints staggered 12" minimum from the layer below, in each direction.
- D. To prevent gaps from foot traffic, roof insulation shall be fastened as soon as possible following installation.
- E. Install spray urethane foam insulation to fill all gaps or voids in the insulation, particularly at the wall-roof perimeter juncture.
- F. Whether shown on the drawings or not; install spray urethane foam on the top side of the roof deck, filling low-flutes to top-of-deck, at all locations where interior wall panels do not penetrate the roof deck and separate either refrigerated areas at different temperatures or refrigerated areas from ambient areas. Top surface of sprayed insulation shall be shaved so surface matches top-of-deck flutes. Spray insulation shall be placed 4'-0" on both sides of partition walls.

3.2 ROOFING APPLICATION

- A. Roofing membrane shall be installed in strict accordance with manufacturer's specifications.
- B. To prevent shrinkage of roof insulation from overexposure to the sun, roofing membrane shall be laid over insulation as soon as possible.
- C. Work shall be scheduled and performed in a uniform manner to reduce traffic over in-place work.
- D. Plywood shall be used to provide work paths or work areas to protect in-place work.
- E. Roof membrane shall not be placed over wet insulation. When there is a threat of wet weather, insulation shall be covered with plastic sheets arranged, and securely anchored, in shingle-fashion to drain water off the surface.
- F. Whether shown on the drawings or not, expansion joints shall be included at all building/structure expansion joints, between new and existing structures, and/or as otherwise required by the roof system manufacturer.

3.3 METALS APPLICATION

- A. Roofing related metals shall be installed in strict accordance with manufacturer's specifications.
- B. All exposed fasteners shall be corrosion resistant, installed with neoprene washers, and color coordinated when fastening pre-finished metals.
- C. Any pre-finished metals damaged after installation shall be touched-up using the same material as the original coating. Primed materials shall be touched-up with primer.

3.4 SPECIAL VAPOR BARRIERS

- A. The roofing subcontractor is responsible for furnishing and installing roof-to-wall special vapor barriers. This applies to all partition walls that penetrate the roof deck and/or all exterior walls. The Low-Temp subcontractor will be on-site during all final terminations of the roof/wall juncture to ensure this work is being completed per the specification and manufacturer details.
- B. Special Vapor Barrier:
 - 1. Hold back top layer of roofing insulation a minimum of one-half (1/2") inch from the inside face of the wall panel. Fill the resulting void with spray-urethane foam insulation, two-passes, cut flush with roof insulation.
 - 2. Fill "indented" exterior flutes of insulated wall panels with Vulkem 116; from top of panel cap channel to a minimum four (4") inches below the top of the wall panel. Intent is to provide flush surface on exterior of panel. Do not proceed with additional work until Vulkem 116 is firm to touch, not tacky.
 - 3. Glue roof membrane to panel cap channel and then seal membrane to wall panel with special vapor barrier
 - 4. Attach edge metals and counterflash.

3.5 FIELD QUALITY CONTROL

- A. Field inspections by a Manufacturer's Representative will be required at critical times during construction, and following completion.

END OF SECTION