

SECTION 07 72 00
ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish and install the following:
 - 1. Insulation for piping, ductwork and equipment.
 - 2. Protection membrane.
 - 3. Pre-manufactured pipe chase housing (doghouse).

1.2 RELATED REQUIREMENTS

- A. Section 06 10 00 - ROUGH CARPENTRY: Wood curbing, nailers, and blocking.
- B. Section 07 59 00 - CUTTING AND PATCHING MEMBRANE ROOFING:
 - 1. Partial removal of existing roofing system as required for preparation of new construction.
 - 2. Walkway pads leading from roof access point to each rooftop mechanical unit and at work areas surrounding rooftop units, or as otherwise indicated on the Drawings.
- C. Section 09 91 00 - PAINTING: Field painting of roof accessories.

1.3 REFERENCES

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES.
 - 1. ASTM A 525 - General Requirements for Steel Sheet, Zinc-Coated by the Hot Dip Process
 - 2. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
 - 3. ASTM D 2822 - Asphalt Roof Cement.
 - 4. ASTM E 85 - Test Method for Surface Burning Characteristics of Building Materials.
 - 5. UL - Fire Hazard Classifications
 - 6. FM - Roof Assembly Classifications.
 - 7. All applicable federal, state and municipal codes, laws and regulations for ratings of roof assemblies
- B. The following reference materials are hereby made a part of this Section by reference thereto:
 - 1. NRCA - Roofing and Waterproofing Manual.
 - 2. SMACNA - Architectural Sheet Metal Manual.

1.4 SUBMITTALS

- A. Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
 - 1. Literature: Manufacturer's product data sheets, specifications, performance data,

physical properties for each roof specialty item and related accessories furnished hereunder, include data on shape of components, materials and finishes, anchor types and locations.

2. Manufacturer's installation instructions: Indicate interface with adjacent components, and perimeter conditions.
3. Shop drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work. Provide details bearing dimensions of actual measurements taken at the project

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with NRCA details.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in unopened, factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Store under cover and protect from weather damage.
- B. Sequence deliveries to avoid delays, but minimize on-site storage time.
- C. Store all materials in an elevated dry location, protected by waterproof coverings.

1.7 PROJECT CONDITIONS

- A. Perform work of this Section when existing or forecasted weather conditions are within the limits established by manufacturers of the materials and products used.
- B. Field Measurements: Do not delay job progress, allow for field tolerances.

1.8 WARRANTY

- A. Provide 5 year warranty under provisions of Section 01 78 00 - CLOSEOUT SUBMITTALS. Warranty shall include repair or replacement of roof accessories which exhibit defects in materials or workmanship. "Defects" is defined as uncontrolled leakage or water and abnormal aging or deterioration.

PART 2 - PRODUCTS

2.1 INSULATION FOR PIPING, DUCTWORK AND EQUIPMENT

- A. Description: Flexible, closed-cell elastomeric insulation, form meeting the requirements as defined in ASTM C 534 – "Specification for preformed elastomeric cellular thermal insulation in sheet and tubular form".
- B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Armacell Engineered Foams, LLC, Mebane, NC, product: "Armatuff Laminated Insulation, (with the UV protective white laminate)" or approved equal.

2.2 PIPE SUPPORTS

- A. Fixed-Height Cradle-Type Pipe Supports: Polycarbonate pipe stand accommodating up to [1-1/2-inch- (38-mm-) diameter pipe or conduit; with provision for pipe retainer and with manufacturer's support pad or deck plate as recommended for penetration-free installation over roof membrane type; as required for quantity of pipe runs and sizes.
- B. Miscellaneous individual pipes and conduits not supported on equipment rails

2.3 PROTECTION MEMBRANE

- A. Membrane for ice-dam and wind-blown rain protection: Sheet barrier of rubberized membrane bonded to sheet polyethylene, minimum 40 mil (1.13 mm), one total thickness, with strippable treated release paper; having the following minimal characteristics:
 - 1. Minimum tensile strength (tested in accordance with ASTM D 412, Die C modified) of 250 pounds per square inch,
 - 2. Minimum elongation to ultimate failure of 250 percent, and unaffected pliability when tested per ASTM D 146 over 180 degree bend at minus 25 degrees Fahrenheit (- 32°C.).
 - 3. Minimum adhesion of 3 pounds per inch width (528 N/m), tested per ASTM D903 to plywood.
 - 4. Maximum permeance when tested in accordance with ASTM D96, 0.05 perms (2.9ng/m2sPa).
 - 5. Subject to conformance with the above requirements, acceptable products include the following, or approved equal:
 - a. W.R. Grace Company, Cambridge MA., product "Grace Ice & Water Shield".
 - b. Nicolon/Mirafi Group, Norcross GA., product "Miridri WIP".

2.4 PREFORMED FLASHING SLEEVES

- A. Pre-molded round boot flashing: 45-mil reinforced UltraPly TPO pipe boot
 - 1. Size: custom size to accommodate structural steel tube
 - 2. Fabrication: Factory welded seams with flange for attaching to existing roofing membrane
 - 3. Color: match existing roof;
 - 4. Location: at steel tubes supporting DSE units

2.5 PRE-MANUFACTURED PIPE CHASE HOUSING

- B. Products: Provide the following pre-manufactured pipe chase housing, or approved equal:
 - 1. Pipe Chase Housing, distributed by Alta Products, LLC. Seattle Washington, John Applegate. (206) 409-1237.
- C. Construction: .125" Welded aluminum housing and curb with stainless steel hardware, insulation, integral curb and removable top as indicated on drawings.
- D. Size: As indicated on drawings
- E. Finish: Powder coated, standard color.

- F. Exit Seals: PVC injection molded to schedule-80 performance standards with EDPM gaskets.

2.6 FLEXIBLE WALKWAY PADS

- A. Products: provide the following:
 - 1. UltraPly TPO walkway Pad, W56TPO3024
 - 2. Size: 30 inches wide x 50 feet long
 - 3. Thickness: .156 inches

2.7 METAL MATERIALS

- A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
 - 1. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
- B. Aluminum Extrusions and Tubes: ASTM B 221 (ASTM B 221M), manufacturer's standard alloy and temper for type of use, finished to match assembly where used; otherwise mill finished.
- C. Stainless-Steel Sheet and Shapes: ASTM A 240/A 240M or ASTM A 666, Type 304.
- D. Steel Shapes: ASTM A 36/A 36M, hot-dip galvanized according to ASTM A 123/A 123M unless otherwise indicated.
- E. Steel Tube: ASTM A 500/A 500M, round tube.
- F. Galvanized-Steel Tube: ASTM A 500/A 500M, round tube, hot-dip galvanized according to ASTM A 123/A 123M.
- G. Steel Pipe: ASTM A 53/A 53M, galvanized.

2.8 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, thickness and thermal resistivity as indicated.
- C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, containing no arsenic or chromium, and complying with AWWPA C2; not less than 1-1/2 inches (38 mm) thick.
- D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

- E. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.
- F. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.
- G. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect all surfaces and verify that they are in proper condition to receive the work of this Section.
- B. Beginning of installation means acceptance of existing site conditions.

3.2 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions.
 - 1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
 - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
 - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
 - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of underlayment and cover with manufacturer's recommended slip sheet.
 - 3. Bed flanges in adhesive compatible with roofing membrane, as required by manufacturers of roof accessories for waterproof performance.
- C. Roof Curb Installation: Install each roof curb so top surface is level.
- D. Equipment Support Installation: Install equipment supports so top surfaces are level with each other.
- E. Pipe Support Installation: Comply with MSS SP-58 and MSS SP-89. Install supports and attachments as required to properly support piping. Arrange for grouping of parallel runs of horizontal piping, and support together.

- 1. Pipes of Various Sizes: Space supports for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
- F. Preformed Flashing-Sleeve and Flashing Pipe Portal Installation: Secure flashing sleeve to roof membrane according to flashing-sleeve manufacturer's written instructions; flash sleeve flange to surrounding roof membrane according to roof membrane manufacturer's instructions.
- G. Seal joints with elastomeric sealant as required by roof accessory manufacturer.
 - 1. Flexible walkway pad installation: comply with manufacturers written instructions for adhered installation. Drawings are diagrammatic. Final locations shall be coordinated with rooftop mechanical equipment, roofing seams, drains, and other roof accessories.
 - 2. Provide additional width at turning points.

3.3 ADJUSTING

- A. Test operation of vents and hatches upon completion of the installation. Make any and all adjustments necessary to ensure proper operation.
- B. Touch up damaged coatings and finishes.

3.4 CLEANING

- A. Remove all labels and packing materials from roof accessories, and thoroughly clean all metal surfaces free from dirt, handling marks, and other foreign matter.
 - 1. Do not remove UL labels and "Risk of Fall" or other similar warning labels.
- B. Upon completion of the work of this Section in any given area, remove tools, equipment and all rubbish and debris from the work area; leave area in broom-clean condition.

END OF SECTION