

SECTION 07 72 00 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. *Uniform General Conditions for Construction Contracts, State of Texas, 2010 (UGC).*
 - 2. *The University of Houston's Supplemental General Conditions and Special Conditions for Construction.*

1.2 SUMMARY

- A. Section Includes:
 - 1. Roof curbs.
 - 2. Roof hatches.
- B. Related Sections:
 - 1. Section 05 50 00 "Metal Fabrications" for metal vertical ladders, ships' ladders, and stairs for access to roof hatches.
 - 2. Section 07 62 00 "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing, roof-drainage systems, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.
 - 3. Section 07 71 00 "Roof Specialties" for manufactured fasciae, copings, gravel stops, gutters and downspouts, and counterflashing.

1.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For roof accessories. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.

- C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.

1.5 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

1.7 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1.8 WARRANTY

- A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finishes or replace roof accessories that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOF CURBS

- A. Roof Curbs: Internally reinforced roof-curb units with integral spring-type vibration isolators and capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings; with welded or mechanically fastened and sealed corner joints, integral metal cant, and integrally formed deck-mounting flange at perimeter bottom.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following :
 - 2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

- a. AES Industries, Inc.
 - b. Pate Company (The).
 - c. Roof Products, Inc.
 - d. Substitutions: See Section 01 25 00 – Substitution Procedures.
- B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.
- C. Material: Zinc-coated (galvanized) steel sheet, 18 gage 0.048 inch thick, complying with ASTM A 653/A 653M, SS Grade 33 (230).
1. Finish: G60 (Z180)coating designation.
 2. Color: As selected by Architect from manufacturer's full range .
- D. Construction:
1. Insulation: Factory insulated with 1-1/2-inch- thick glass-fiber board insulation.
 2. Liner: Same material as curb, of manufacturer's standard thickness and finish.
 3. Preservative treated wood nailer at top of curb, continuous around curb perimeter.
 4. On ribbed or fluted metal roofs, form deck-mounting flange at perimeter bottom to conform to roof profile.
 5. Manufacture curb bottom and mounting flanges for installation directly on roof deck, not on insulation; match slope and configuration of roof deck.
 6. Fabricate curbs to minimum height of 14 inches above roof deck, 6 inches (152 mm) minimum above finished roof surface, unless otherwise indicated.
 7. Top Surface: Level around perimeter with roof slope accommodated by sloping the deck-mounting flange.
 8. Sloping Roofs: Where roof slope exceeds 1:48, fabricate curb with perimeter curb height tapered to accommodate roof slope so that top surface of perimeter curb is level. Equip unit with water diverter or cricket on side that obstructs water flow.
 9. Security Grille: Provide where indicated.
 10. On curbs adjacent to roof openings, provide curb on all sides of opening, with top of curb horizontal for equipment mounting.
 11. Provide layouts and configurations as shown on the drawings.
- E. Equipment Rails: Two-sided curbs in straight lengths, with top horizontal for equipment mounting.
1. Provide preservative treated wood nailers along top of rails.
 2. Height Above Finished Roof Surface: 6 inches (152 mm), minimum.
 3. Height Above Roof Deck: 14 inches (356 mm), minimum.
- F. Pipe, Duct, and Conduit Mounting Pedestals: Vertical posts, minimum 8 inches (400mm) square unless otherwise indicated.
1. Provide sliding channel welded along top edge with adjustable height steel bracket, manufactured to fit item supported.
 2. Height Above Finished Roof Surface: 8 inches (203 mm), minimum.
 3. Height Above Roof Deck: 14 inches (356 mm), minimum.

2.2 ROOF HATCH

- A. Roof Hatches: Metal roof-hatch units with lids and insulated single -walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, integral metal cant, and integrally formed deck-mounting flange at perimeter bottom.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following :
 2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Bilco Company (The).
 - b. Dur-Red Products.
 - c. Milcor Inc.; Commercial Products Group of Hart & Cooley, Inc.
 - d. Substitutions: See Section 01 25 00 – Substitution Procedures.
- B. Roof Hatches: Factory-assembled steel frame and cover, complete with operating and release hardware.
1. Style: Provide flat metal covers unless otherwise indicated.

Retain subparagraph below if retaining either of last two options in subparagraph above.

2. Mounting: Provide frames and curbs suitable for mounting on flat roof deck .
 3. Size(s): As indicated on drawings; single-leaf style unless otherwise indicated as double-leaf.
 4. For Ladder Access: Single leaf; 30 by 36 inches (762 by 914 mm).
 5. For Ships Ladder Access: Single leaf; 30 by 54 inches (762 by 1372 mm).
 6. For Stair Access: Single leaf; 30 by 96 inches (762 by 2438 mm).
- C. Frames/Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.

First option in first subparagraph below applies only to zinc-coated (galvanized) steel sheet.

1. Material: Galvanized steel, 14 gage, 0.0747 inch (1.90 mm) thick.

Retain subparagraph below if retaining either of last two options in subparagraph above.

2. Finish: Factory prime paint.
 3. Insulation: 1 inch (25 mm) rigid glass fiber, located on outside face of curb.
 4. Curb Height: 12 inches (305 mm) from finished surface of roof, minimum.
- D. Metal Covers: Flush, insulated, hollow metal construction.

First option in first subparagraph below applies only to zinc-coated (galvanized) steel sheet.

1. Capable of supporting 40 psf (1.92 kPa) live load.

Retain subparagraph below if retaining either of last two options in subparagraph above.

2. Material: Galvanized steel; outer cover 14 gage, 0.0747 inch (1.90 mm) thick, liner 22 gage, 0.03 inch (0.76 mm) thick.
 3. Finish: Factory prime paint.
 4. Insulation: 1 inch (25 mm) rigid glass fiber.
 5. Gasket: Neoprene, continuous around cover perimeter.
- E. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.

First option in first subparagraph below applies only to zinc-coated (galvanized) steel sheet.

1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf (475 kPa) load.

Retain subparagraph below if retaining either of last two options in subparagraph above.

2. Hinges: Heavy duty pintle type.
3. Hold open arm with vinyl-coated handle for manual release.
4. Latch: Upon closing, engage latch automatically and reset manual release.
5. Manual Release: Pull handle on interior.
6. Locking: Padlock hasp on interior.

2.3 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

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, excessive oil canning, 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 stainless-steel 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 felt underlayment and cover with a slip sheet, or install a course of polyethylene sheet.
 3. Bed flanges in thick coat of asphalt roofing cement where 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. Roof-Hatch Installation:
1. Install roof hatch so top surface of hatch curb is level.
 2. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
 3. Attach safety railing system to roof-hatch curb.
 4. Attach ladder-assist post according to manufacturer's written instructions.
- F. Heat and Smoke Vent Installation:
1. Install heat and smoke vent so top perimeter surfaces are level.
 2. Install and test heat and smoke vents and their components for proper operation according to NFPA 204.
- G. Gravity Ventilator Installation: Verify that gravity ventilators operate properly and have unrestricted airflow. Clean, lubricate, and adjust operating mechanisms.
- H. Pipe Support Installation: Install pipe supports so top surfaces are in contact with and provide equally distributed support along length of supported item.
- I. Security Grilles: Weld bar intersections and, using tamper-resistant bolts, attach the ends of bars to structural frame or primary curb walls.

J. Roof Walkway Installation:

1. Verify that locations of access and servicing points for roof-mounted equipment are served by locations of roof walkways.
2. Remove ballast from top surface of low-slope roofing at locations of contact with roof-walkway supports.
3. Install roof walkway support pads prior to placement of roof walkway support stands onto low-slope roofing.
4. Redistribute removed ballast after installation of support pads.

K. Preformed Flashing-Sleeve Installation: Secure flashing sleeve to roof membrane according to flashing-sleeve manufacturer's written instructions.

L. Seal joints with elastomeric or butyl sealant as required by roof accessory manufacturer.

3.3 REPAIR AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A 780.
- B. Touch up factory-primed surfaces with compatible primer ready for field painting according to Section 09 91 13 "Exterior Painting" and Section 09 91 23 "Interior Painting."
- C. Clean exposed surfaces according to manufacturer's written instructions.
- D. Clean off excess sealants.
- E. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 07 72 00