

## SECTION 07720 - 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.

#### 1.2 SUMMARY

- A. This Section includes the following:

1. Roof curbs.
2. Equipment supports.
3. Stair hatches.
4. Roof hatches.

- B. Related Sections include the following:

1. Division 05 Section "Alternating Tread Steel Stairs" for metal stairs for access to stair hatches.
2. Division 06 Section "Rough Carpentry" for wood cants, and wood nailers.
3. Division 07 Section "Metal Roof Panels" for preformed metal roofing, and snow guards.
4. Division 07 Section "Sheet Metal Flashing and Trim" for shop- and field-fabricated metal flashing and counterflashing, and miscellaneous sheet metal trim and accessories.
5. Division 9 Section "Painting" for field painting of roof accessories.

#### 1.3 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: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other work.
- C. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
  1. Size and location of roof accessories specified in this Section.
  2. Method of attaching roof accessories to roof or building structure.

3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
- D. Samples: For each type of exposed factory-applied finish required and for each type of roof accessory indicated, prepared on Samples of size to adequately show color.
  - E. Warranty: Special warranty specified in this Section.

#### 1.4 QUALITY ASSURANCE

- A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

#### 1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

#### 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.
  1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes.

#### 1.8 WARRANTY

- A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish 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 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers listed in other Part 2 articles.

### 2.2 METAL MATERIALS

- A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by manufacturer for type of use and mill finish.
- B. Aluminum Extrusions and Tubes: ASTM B 221 (ASTM B 221M), alloy and temper recommended by manufacturer for type of use, mill finished.
- C. Stainless-Steel Shapes or Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304 or Type 316, No. 2D finish.

### 2.3 MISCELLANEOUS MATERIALS

- A. Glass-Fiber Board Insulation: ASTM C 726, 1 inch thick.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, 1 inch thick.
- C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, complying with AWPA C2; not less than 1-1/2 inches thick.
- D. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- E. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
  - 1. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft.
- F. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.

- G. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.
- H. Elastomeric Sealant: ASTM C 920, polyurethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- I. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

## 2.4 ROOF CURBS

- A. Roof Curbs: Provide metal roof curbs, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Fabricate with welded or sealed mechanical corner joints, with and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
  - 1. Available Manufacturers:
    - a. Colony Custom Curbs.
    - b. Commodity Products Company, Inc.
    - c. Conn-Fab Sales, Inc.
    - d. Curbs Plus Inc.
    - e. Custom Curb, Inc.
    - f. LM Curbs.
    - g. Loren Cook Company.
    - h. Metallic Products Corporation.
    - i. Pate Company (The).
    - j. Roof Products & Systems Corporation.
    - k. Roof Products, Inc.
    - l. Thaler Metal Industries Ltd.
    - m. ThyCurb; Div. of Thybar Corporation.
    - n. Uni-Curb, Inc.
    - o. Vent Products Company, Inc.
  - 2. Load Requirements: live load of 40 psf.
  - 3. Material: Aluminum sheet, 0.090 inch thick.
    - a. Finish: Mill finish aluminim.
  - 4. Liner: Same material as curb, of manufacturer's standard thickness and finish.
  - 5. Factory install wood nailers at tops of curbs.
  - 6. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  - 7. Factory insulate curbs with 1" thick, glass-fiber board insulation.

8. Curb height may be determined by adding thickness of roof insulation and minimum base flashing height recommended by roofing membrane manufacturer. Fabricate units to minimum height of 12 inches, unless otherwise indicated.
9. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

## 2.5 EQUIPMENT SUPPORTS

- A. Equipment Supports: Provide metal equipment supports, internally reinforced and capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Fabricate with welded or sealed mechanical corner joints, with and integral formed mounting flange at perimeter bottom. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
  1. Available Manufacturers:
    - a. Colony Custom Curbs.
    - b. Commodity Products Company, Inc.
    - c. Conn-Fab Sales, Inc.
    - d. Curbs Plus Inc.
    - e. Custom Curb, Inc.
    - f. LM Curbs.
    - g. Loren Cook Company.
    - h. Metallic Products Corporation.
    - i. Pate Company (The).
    - j. Roof Products & Systems Corporation.
    - k. Roof Products, Inc.
    - l. Thaler Metal Industries Ltd.
    - m. ThyCurb; Div. of Thybar Corporation.
    - n. Uni-Curb, Inc.
    - o. Vent Products Company, Inc.
  2. Load Requirements: live load of 40 psf.
  3. Material: Aluminum sheet, 0.090 inch thick.
    - a. Finish: Mill finish aluminum
  4. Factory-install continuous wood nailers 3-1/2 inches wide at tops of equipment supports.
  5. Metal Counterflashing: Manufacturer's standard removable counterflashing, fabricated of same metal and finish as equipment support.
  6. Fabricate units to minimum height of 12 inches, unless otherwise indicated.
  7. Sloping Roofs: Where slope of roof deck exceeds 1:48, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

## 2.6 STAIR HATCHES

- A. Stair Hatches: Fabricate stair hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.
1. Available Manufacturers:
    - a. Babcock-Davis; a Cierra Products Inc. Company.
    - b. Bilco Company (The).
    - c. Bristolite Skylights.
    - d. Custom Curb, Inc.
    - e. Dur-Red Products.
    - f. Hi Pro International, Inc.
    - g. J. L. Industries, Inc.
    - h. Metallic Products Corporation.
    - i. Milcor Inc.; a Gibraltar Company.
    - j. Nystrom, Inc.
    - k. O'Keeffe's Inc.
    - l. Precision Ladders, LLC.
    - m. Roof Products & Systems Corporation.
    - n. ThyCurb; Div of Thybar Corporation.
    - o. Wasco Products, Inc.
    - p. Western Canwell.
  2. Loads: Fabricate stair hatches to withstand 40-lbf/sq. ft. external and 20-lbf/sq. ft. internal loads.
  3. Type and Size: Single-leaf lid, 30 by 72 inches.
  4. Curb and Lid Material: Aluminum sheet, 0.090 inch thick.
    - a. Finish: Mill finish aluminum
  5. Insulation: Glass-fiber or Polyisocyanurate board.
  6. Interior Lid Liner: Manufacturer's standard metal liner of same material and finish as outer metal lid.
  7. Exterior Curb Liner: Manufacturer's standard metal liner of same material and finish as metal curb.
  8. Fabricate units to minimum height of 12 inches, unless otherwise indicated.
  9. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate hatch curbs with height tapered to match slope to level tops of units.
  10. Hardware: Stainless-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside.
  11. Safety Railing System: Manufacturer's standard complete system including rails, clamps, fasteners, safety barrier at railing opening, and all accessories required for a complete installation.

- a. Test Load: Uniform load of 50 lbf / ft and concentrated load of 200 lbf applied in any direction.
- b. Height: 42 inches above finished roof deck.
- c. Pipe or Tube: 1-1/4-inch ID galvanized pipe.
- d. Flat Bar: 2-inch- high by 3/8-inch- thick galvanized steel.
- e. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
- f. Pipe Ends and Tops: Covered or plugged with weather-resistant material.
- g. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members that are exposed to exterior or to moisture from condensation or other sources.
- h. Fabricate joints that will be exposed to weather in a watertight manner.
- i. Close exposed ends of handrail and railing members with prefabricated end fittings.
- j. Fasteners: Manufacturer's standard.

## 2.7 HEAT AND SMOKE VENTS

- A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.
  1. Available Manufacturers:
    - a. Babcock-Davis; a Cierra Products Inc. Company.
    - b. Bilco Company (The).
    - c. Bristolite Skylights.
    - d. Custom Curb, Inc.
    - e. Dur-Red Products.
    - f. Hi Pro International, Inc.
    - g. J. L. Industries, Inc.
    - h. Metallic Products Corporation.
    - i. Milcor Inc.; a Gibraltar Company.
    - j. Nystrom, Inc.
    - k. O'Keeffe's Inc.
    - l. Precision Ladders, LLC.
    - m. Roof Products & Systems Corporation.
    - n. ThyCurb; Div of Thybar Corporation.
    - o. Wasco Products, Inc.
    - p. Western Canwell.
  2. Loads: Fabricate roof hatches to withstand 40-lbf/sq. ft. external and 20-lbf/sq. ft. internal loads.
  3. Type and Size: Single-leaf lid, 30 by 36 inches.
  4. Curb and Lid Material: Aluminum sheet, 0.090 inch thick.

- a. Finish: Baked enamel.
5. Insulation: Glass-fiber or Polyisocyanurate board.
  6. Interior Lid Liner: Manufacturer's standard metal liner of same material and finish as outer metal lid.
  7. Exterior Curb Liner: Manufacturer's standard metal liner of same material and finish as metal curb.
  8. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  9. Fabricate units to minimum height of 12 inches, unless otherwise indicated.
  10. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate hatch curbs with height tapered to match slope to level tops of units.
  11. Hardware: Stainless-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.
  12. Ladder Safety Post: Manufacturer's standard ladder safety post. Post to lock in place on full extension. Provide release mechanism to return post to closed position.
    - a. Height: 42 inches above finished roof deck.
    - b. Material and Finish: Aluminum, mill finished.
    - c. Diameter: Pipe with 1-5/8-inch OD tube.
  13. Safety Railing System: Manufacturer's standard complete system including rails, clamps, fasteners, safety barrier at railing opening, and all accessories required for a complete installation.
    - a. Test Load: Uniform load of 50 lbf / ft and concentrated load of 200 lbf applied in any direction.
    - b. Height: 42 inches above finished roof deck.
    - c. Pipe or Tube: 1-1/4-inch ID galvanized pipe.
    - d. Flat Bar: 2-inch- high by 3/8-inch- thick galvanized steel.
    - e. Chain Passway Enclosure: Galvanized proof coil chain with quick link on fixed end.
    - f. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
    - g. Pipe Ends and Tops: Covered or plugged with weather-resistant material.
    - h. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members that are exposed to exterior or to moisture from condensation or other sources.
    - i. Fabricate joints that will be exposed to weather in a watertight manner.
    - j. Close exposed ends of handrail and railing members with prefabricated end fittings.
    - k. Fasteners: Manufacturer's standard.



## 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 work.
  - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
  - 2. Verify dimensions of roof openings for roof accessories.
  - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Install roof accessories to fit substrates and to result in watertight performance.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action 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 exposed-to-view components of 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 underlayment.
  - 3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.
- D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.
- E. Roof Curb Installation:
  - 1. Set roof curb so top surface of roof curb is level.
- F. Equipment Support Installation:
  - 1. Set equipment support so top surface of equipment support is level.
- G. Stair Hatch Installation:

1. Check stair hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
2. Attach safety railing system to roof hatch curb.

H. Roof Hatch Installation:

1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
2. Attach safety railing system to roof hatch curb.
3. Attach ladder safety post according to manufacturer's written instructions.

3.3 TOUCH UP

- A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Division 09 painting Sections.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.4 CLEANING

- A. Clean exposed surfaces according to manufacturer's written instructions.

END OF SECTION 07720