

**SECTION 07 72 00
ROOF ACCESSORIES**

SPEC WRITER NOTES:

Delete between // // if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
Include standard manufactured components installed on and in roofing other than mechanical, electrical, and structural items.

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies roof hatches; equipment supports; gravity ventilators; and metal grating roof walkway system.

1.2 RELATED WORK

- A. //Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS: Sustainable Design Requirements.//
- B. Section 07 21 13, THERMAL INSULATION: General insulation.
- C. Section 07 22 00, ROOF AND DECK INSULATION: Rigid insulations for roofing.
- D. Section 07 92 00, JOINT SEALANTS: Sealant material and installation.
- E. Section 09 06 00, SCHEDULE FOR FINISHES: Color and texture of finish.

1.3 QUALITY ASSURANCE

- A. Provide roof accessories that are the products of manufacturers regularly engaged in producing the kinds of products specified.
- B. For each accessory type provide the same product made by the same manufacturer.
- C. Assemble each accessory to the greatest extent possible before delivery to the site.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. //Sustainable Design Submittals, as described below:
 - 1. //Postconsumer and preconsumer recycled content as specified in PART 2 - PRODUCTS.//
- C. Samples: Submit representative sample panel of color anodized aluminum not less than 101 x 101 mm (4 x 4 inches). For extrusions, submit width not less than section to be installed. Show coating with integral color and texture and include manufacturer's identifying label.

- D. Shop Drawings: Each item specified showing design, details of construction, installation and fastenings.
- E. Manufacturer's Literature and Data: Each item specified.
- F. Certificates: Stating that aluminum has been given specified thickness of anodizing.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extend referenced. The publications are referenced in the text by the basic designation only.
- B. ASTM International (ASTM):
 - A653/A653M-20.....Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) By the Hot-Dip Process
 - B209-14.....Aluminum and Aluminum-Alloy Sheet and Plate
 - B209M-14.....Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
 - B221-14.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - B221M-13.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric)
 - C726-17.....Mineral Wool Roof Insulation Board
 - C1289-19.....Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
 - D1187/D1187M-97(2018)...Asphalt-Base Emulsions for Use as Protective Coatings for Metal
- C. National Association of Architectural Metal Manufacturers (NAAMM):
 - AMP 500-06 Series.....Metal Finishes Manual
- D. American Architectural Manufacturers Association (AAMA):
 - 2603-20.....Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
 - 2605-20.....Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Architectural Extrusions and Panels (with Coil Coating Appendix).
 - 611-14.....Anodized Architectural Aluminum

621-02.....High Performance Organic Coatings on Coil
Coated Architectural Hot Dipped Galvanized
(HDG) and Zinc-Aluminum Coated Steel Substrates

E. American Society of Civil Engineers (ASCE):

ASCE/SEI 7-16.....Minimum Design Loads and Associated Criteria
for Buildings and Other Structures

F. U.S. Occupational Safety and Health Standards (OSHA):

29 CFR 1910 Subpart D... Walking-Working Surfaces (1910.21-1910.30)

PART 2 - PRODUCTS

SPEC WRITER NOTE: Update materials requirements to agree with applicable requirements (types, grades, classes) specified in the referenced Applicable Publications.

2.1 MATERIALS

A. Aluminum, Extruded: ASTM B221M (B221).

B. Aluminum Sheet: ASTM B209M (B209).

C. Galvanized Sheet Steel: ASTM A653/A653M; G-90 coating.

D. // Recycled Content of Metal Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than // 30 // // // percent. //

E. Asphalt Coating: ASTM D1187/D1187M, Type I, quick setting.

2.2 ROOF HATCH (SCUTTLE)

A. Performance Characteristics:

1. Cover to be reinforced to support a minimum live load of 195 kilogram per square meter (40 pounds per square foot) with a maximum deflection of 1/150th of the span or 97 kilogram per square meter (20 pounds per square foot) wind uplift.
2. Operation of the Cover: Smooth and easy with controlled operation throughout the entire arc of opening and closing.
3. Operation of the Cover: Not affected by temperature.
4. Entire Hatch: Weathertight with fully welded corner joints on cover and curb.

B. Shop fabricate from aluminum with mill finish.

C. Curb and Cover:

1. Exterior facing: Minimum 2.3 mm (0.09 inch) thick sheet aluminum with mill finish.
2. Interior facing: Minimum 1 mm (0.04 inch) thick sheet aluminum.

3. Minimum of 50 mm (2 inch) thick polyisocyanurate insulation (ASTM C1289) with a U-value = 0.47 W/mK (R-value = 12) between facings of cover and over exterior face of curb.
4. Form exterior curb facing with an integral 76 mm (3 inch) wide roof flange and cap flashing minimum 2.3 mm (0.09 inch) thick sheet aluminum.

SPEC WRITER NOTE: Do not use less than 305 mm (12 inch high) curb above roof surface. Where access is to service roof equipment comply with OSHA for stair size, roof opening 750 mm x 2400 mm (2 feet, 6 inches x 8 feet). Show opening size on the drawings. Coordinate/insert height requirements and finish.

5. Make curb // 305 mm (12 inches) // // // above finish roof surface.
6. Form cover to lap curb and cap flashing.
7. Size opening as shown on construction documents.
8. Finish: // //; color // //.

D. Hardware:

1. Provide spring snap latch with inside and outside operating handles and padlock hasp on inside. Provide two snap latches when hinge side is over 2100 mm (7 feet) long. Bolt hardware into heavy gauge channel reinforcement welded to the underside of the cover and concealed within the insulation space.
2. Provide heavy duty pintle hinges.
3. Provide automatic hold open and operating arm with enclosed torsion or compression spring lifting mechanism.
4. Latch Strike: Stamped component bolted or welded to the curb assembly.
5. Automatically lock in the open position at not less than 70 degrees.
6. Provide weather stripping at cover closure.
7. Galvanize all hardware items.

E. Assembly:

1. Shop assemble roof scuttle.
2. Weld joints exposed to the weather and built into the roofing.
3. Finish weld smooth where exposed.

F. Safety Accessories:

1. Ladder Assist Post: Provide a telescoping tubular section that locks automatically when fully extended. Control upward and downward

movement by a stainless steel spring balancing mechanism. Provide unit completely assembled with fasteners for securing to the ladder rungs in accordance with the manufacturer's instructions.

2. Safety Railing: Provide a fixed, attached to the roof hatch railing assembly including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; complying with 29 CFR 1910.23 requirements.

SPEC WRITER NOTE: Use following article for roof mounted equipment items other than mechanical equipment items. Prefabricated roof curbs for fans, ventilators and other roof mounted mechanical items are specified in Mechanical Specifications. Coordinate/insert load requirements and finish/colors.

2.3 EQUIPMENT SUPPORTS

- A. Supported Load Capacity: // //.
- B. Fabricate equipment supports from 1.3 mm (0.0516 inch) thick galvanized ASTM A653/A653M steel fabricate with welded corners and with seams joined by continuous water and air tight welds.
- C. Equipment supports to be internally reinforced with angles 1.22 m (48 inches) on center.
- D. Form exterior curb with integral base, // and deck closures for curbs installed on steel decking. //
- E. Use galvanized steel liners for curbs having inside dimension over 305 mm (12 inches).
- F. Internally insulate with 38 mm (1-1/2 inch) glass-fiber board insulation (ASTM C726).
- G. Fabricate curb with a minimum height of 203 mm (8 inches) above roof surface.
- H. Attach preservative treated wood nailers to top of curb. Provide 50 mm (2 inch) by 50 mm (2 inch) minimum nominal size on curb with openings and 50 mm (2 inch) thick, width of curb up to 305 mm (12 inches) on equipment support curbs.
- I. Make size of supports suit size of equipment furnished, with height as shown on construction documents, but not less than 203 mm (8 inches) above roof surface.

J. Top of Equipment Supports: Level with pitch built into curb when deck slopes. Equip supports with water diverter or cricket on side that obstructs water flow.

K. Finish: // //; color // //.

SPEC WRITER NOTE: Use following article for gravity type ventilators not connected to ducts. All ventilators, mechanical and gravity, that are connected to ducts are specified in Mechanical Specifications. Coordinate finish/color.

2.4 LOW SILHOUETTE GRAVITY VENTILATORS

A. Fabricate base of 1 mm (0.04 inch) thick aluminum, and vent of 0.8 mm (0.032 inch) thick aluminum.

1. Height not to exceed 305 mm (12 inches) above top of roof curb.

2. Design ventilators to withstand 137 Km (85 miles) per hour wind velocity.

3. Provide ventilators with a removable 18 by 18 mesh by 0.28 mm (0.11 inch) diameter aluminum wire cloth insect screen.

4. //Provide security grille where indicated on construction documents. //

B. Construct damper of the same material as the ventilator and design to completely close opening or remain wide open. Hold damper in closed position by a brass chain and catch. Extend chains 305 mm (12 inches) below and engage catch when damper is closed.

C. Finish: // //; color // //.

2.5 METAL GRATING ROOF WALKWAY SYSTEM

A. Provide metal grating roof walkway system consisting of prefabricated pans, of 14 gauge, galvanized (G-90 Coating) steel grating with slip resistant surface.

B. Grating units to be in 610 mm (2 foot) widths and in 3048 to 3658 mm (10 to 12 foot long) sections as required.

C. Provide complete with support framing, brackets, connectors, nosings and other accessories as required for complete roof walkway system.

1. Include support stands at minimum 1524 mm (5 feet) on center to hold planks a minimum of 228 mm (9 inches) above roof surface.

2. Provide wind restraint attachment to roof structure of size and spacing required to meet wind uplift requirements.

- D. Include step units, nosings framing and connectors to provide changes in elevation as required. Comply with ASCE 7 and 29 CFR 1910.23.
- E. Equip walkways with safety railings where required by 29 CFR 1910.23.
- F. Provide neoprene rubber pads having a shore A hardness of 80 to 90-Durometer under each support, or bearing surface.
- G. Finish: // //; color // //.

SPEC WRITER NOTE: Edit/select finishes used. Use AAMA 621 for zinc coated steel sheet use AAMA 2605 for aluminum sheet.

2.6 FINISH:

- A. In accordance with NAAMM AMP 500 Series.
- B. //Aluminum, Mill Finish: AA-MIX, as fabricated.//
- C. //Aluminum, Clear Finish AAMA 611: AA-M12C22A41 medium matte, clear anodic coating, // Class I, Architectural, 0.018 mm (0.7 mils) thick (min.) // . // AA-M12C22A31 Class II, Architectural, 0.010 mm (0.4 mils) thick (min.) . // //
- D. //Aluminum Colored Finish AAMA 611: AA-C22A42 (anodized or AA-M12C22A44 (electrolytically deposited metallic compound) medium matte, integrally colored coating, // Class 1, Architectural, 0.018 mm (0.7 mils) thick (min.)// . // AA-M12C22A32/A33 Class II, Architectural, 0.010 mm (0.4 mils) thick (min.) . // Dyes will not be accepted.//
- E. //Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 0.04 mm (1.5 mils). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish. //
- F. //Fluoropolymer Finish: High performance organic coating. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.
 1. //Two-Coat Fluoropolymer Finish: AAMA 2605. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight. //
 2. //Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.// //

SPEC WRITER NOTE: Show anchorage location for items specified on drawings.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Install roof specialties where indicated on construction documents.
- B. Secure with fasteners in accordance with manufacture's printed installation instructions and approved shop drawings unless shown otherwise.
- C. Coordinate to install insulation where shown; see Section 07 21 13, THERMAL INSULATION and Section 07 22 00, ROOF AND DECK INSULATION.
- D. Comply with section 07 92 00, JOINT SEALANTS to install sealants where required by manufactures installation instructions require sealant.
- E. Coordinate with roofing work for installation of items in sequence to prevent water infiltration.
 - 1. After completion of base flashing bend down cap flashing flange and secure to blocking with screws.
 - 2. Install expansion joint cover with 6 mm (1/4 inch) wide space at end joints and tension bars at 610 mm (24 inches) on center.
 - 3. Install cover plates with formed aluminum flashing concealed and centered on joint. Flashing to lap cover not less than 101 mm (4 inches).
- F. Equipment Supports: Do not anchor to insulating concrete or metal deck. Anchor only to building structure as per manufacturers recommendations.

3.2 PROTECTION OF ALUMINUM

- A. Provide protection for aluminum against galvanic action wherever dissimilar materials are in contact, by painting the contact surfaces of the dissimilar material with two (2) coats of asphalt coating (complete coverage), or by separating the contact surfaces with a preformed neoprene tape having pressure sensitive adhesive coating on side.
- B. Paint aluminum in contact with wood, concrete and masonry, or other absorptive materials, that may become repeatedly wet, with two coats of asphalt coating.

3.3 ADJUSTING

- A. Adjust roof hatch hardware to operate freely and so that cover will operate without binding, close tightly at perimeter, and latch securely.

3.4 PROTECTION

- A. Protect roof accessories from damage during installation and after completion of the work from subsequent construction.

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