

SECTION 077200 – ROOF ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof curbs.
2. Roof hatches.

B. Related Sections:

1. Section 075216 – SBS Modified Bituminous Roofing.
2. Section 076200 – Sheet Metal Flashing and Trim.
3. Section 079200 – Joint Sealants.
4. Section 099113 – Exterior Painting.
5. Section 233423 – HVAC Power Ventilators.
6. Section 233723 – Gravity Ventilators.

C. Reference and Industry Standards

1. The following reference standards shall be applicable to this Section:

New York City Building Code, **current** edition, as amended, inclusive of:

- Chapter 15 Roof Assemblies and Rooftop Structures
- Chapter 16 Structural Design

2. Industry Standards

- AAMA (American Architectural Manufacturers Association)
- ASCE (American Society of Civil Engineers)
- ASTM (American Society for Testing and Materials)
- UL (Underwriters Laboratories)

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory.
- B. Shop Drawings: For roof accessories.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.6 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 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOF CURBS

- A. Roof Curbs: Internally reinforced roof-curb units capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings, bearing continuously on roof structure, and capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, [**straight sides,**] [**integral metal cant,**] [**stepped integral metal cant raised the thickness of roof insulation,**] and integrally formed deck-mounting flange at perimeter bottom.
- B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.
- C. Material: [**Zinc-coated (galvanized)**] [**Aluminum-zinc alloy-coated**] steel sheet, [**0.052 inch**] [**0.064 inch**] [**0.079 inch**] thick.
 - 1. Finish: [**Factory prime coating**] [**Two-coat fluoropolymer**] <Insert finish>.
 - 2. Color: [**As selected by Design-Professional-of-Record from manufacturer's full range**] [**As selected by Owner from manufacturer's full range**].
- D. Material: Aluminum sheet, [**0.090 inch**] [**0.125 inch**] thick.
 - 1. Finish: [**Factory prime coating**] [**Two-coat fluoropolymer**] <Insert finish>.
 - 2. Color: [**As selected by Design-Professional-of-Record from manufacturer's full range**] [**As selected by Owner from manufacturer's full range**] [**Light bronze**] [**Medium bronze**] [**Dark bronze**].
- E. Construction:
 - 1. Curb Profile: [**Manufacturer's standard**] [**Profile as indicated on Drawings**] compatible with roofing system.
 - 2. On ribbed or fluted metal roofs, form deck-mounting flange at perimeter bottom to conform to roof profile.
 - 3. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.

4. Top Surface: Level top of curb, with roof slope accommodated [**by sloping deck-mounting flange**] [**or**] [**by use of leveler frame**].
5. 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.
6. Insulation: Factory insulated with [**1-1/2-inch-**] **<Insert dimension>** thick glass-fiber board insulation.
7. Liner: Same material as curb, of manufacturer's standard thickness and finish.
8. Nailer: Factory-installed wood nailer [**along top flange of curb**] [**under top flange on side of curb**], continuous around curb perimeter.
9. Wind Restraint Straps and Base Flange Attachment: Provide wind restraint straps, welded strap connectors, and base flange attachment to roof structure at perimeter of curb, of size and spacing required to meet wind uplift requirements.
10. Platform Cap: Where portion of roof curb is not covered by equipment, provide weathertight platform cap formed from 3/4-inch-thick plywood covered with metal sheet of same type, thickness, and finish as required for curb.
11. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as curb.
12. Security Grille: Provide where indicated by [**Design-Professional-of-Record**] [**Owner**] [**HPD**].
13. Damper Tray: Provide damper tray or shelf with opening [**3 inches**] **<Insert dimension>** [**less than interior curb dimensions indicated**] [**of size indicated**].

2.2 ROOF HATCHES

- A. Roof Hatches: Metal roof-hatch units with lids and insulated [**single**] [**double**]-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, [**straight sides,**] [**integral metal cant,**] [**stepped integral metal cant raised the thickness of roof insulation,**] and integrally formed deck-mounting flange at perimeter bottom.
 1. Type and Size: Single-leaf lid, [**to match existing size**] [**size as indicated on Drawings**].
 2. Snow Load: See Part 1 – General, Section 1.1 Summary, Sub-Section C Reference Standards.
 - a. When release is actuated, lid shall open against snow load and lock in position.
 3. Wind Load: See Part 1 – General, Section 1.1 Summary, Sub-Section C Reference Standards.
 - a. When release is actuated, lid shall open against wind load and lock in position.
 4. Curb, Framing, and Lid Material: [**Zinc-coated (galvanized)**] [**Aluminum-zinc alloy-coated**] steel sheet.

- a. Thickness: [**Manufacturer's standard thickness for hatch size indicated**] [**0.079 inch**] <Insert dimension>.
 - b. Finish: Two-coat fluoropolymer <Insert finish>.
 - c. Color: [**As selected by Design-Professional-of-Record from manufacturer's full range**] [**As selected by Owner from manufacturer's full range**].
5. Curb, Framing, and Lid Material: Aluminum sheet.
- a. Thickness: [**Manufacturer's standard thickness for hatch size indicated**] [**0.079 inch**] <Insert dimension>.
 - b. Finish: Two-coat fluoropolymer <Insert finish>.
 - c. Color: [**As selected by Design-Professional-of-Record from manufacturer's full range**] [**As selected by Owner from manufacturer's full range**] [**Light bronze**] [**Medium bronze**] [**Dark bronze**].
6. Construction:
- a. Insulation: [**1-inch-thick, cellulosic-fiber board**] [or] [**1-inch-thick, glass-fiber board**] [**2-inch-thick, polyisocyanurate board**].
 - 1) R-Value: [**2.78**] [**4.3**] [**12.0**] <Insert R-value> according to ASTM C1363.
 - b. Nailer: Factory-installed wood nailer continuous around hatch perimeter.
 - c. Hatch Lid: Opaque, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
 - d. Exterior Curb Liner: Manufacturer's standard, of same material and finish as metal curb.
 - e. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.
 - f. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate curb with perimeter curb height that is [**constant**] [**tapered to accommodate roof slope so that top surfaces of perimeter curb are level**]. Equip hatch with water diverter or cricket on side that obstructs water flow.
 - g. Security Grille: Provide where indicated by [**Design-Professional-of-Record**] [**Owner**] [**HPD**].
7. Hardware: Manufacturer's standard corrosion resistant; with hinges, hold-open devices, and independent manual-release devices for inside operation of lids.

2.3 METAL MATERIALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653, G90 coating designation .

- 1. Exposed Coil-Coated Finish: Pre-painted by the coil-coating process to comply with ASTM A755. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- a. Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.
 - b. **<Insert finish>.**
- B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792, AZ50 coated.
 - 1. Exposed Coil-Coated Finish: Pre-painted by the coil-coating process to comply with ASTM A755. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - a. Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.
 - b. **<Insert finish>.**
- C. Aluminum Sheet: ASTM B209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
 - 1. Exposed Coil-Coated Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - a. Two-Coat Fluoropolymer Finish: AAMA 2605. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.
 - b. **<Insert finish>.**
- D. Aluminum Extrusions and Tubes: ASTM B221, manufacturer's standard alloy and temper for type of use, finished to match assembly where used; otherwise mill finished.
- E. Steel Shapes: ASTM A36, hot-dip galvanized according to ASTM A123 unless otherwise indicated.
- F. Steel Tube: ASTM A500, round tube.
- G. Galvanized-Steel Tube: ASTM A500, round tube, hot-dip galvanized according to ASTM A123.
- H. Steel Pipe: ASTM A53, galvanized.

2.4 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Cellulosic-Fiber Board Insulation: ASTM C208, Type II, Grade 1, thickness as indicated.
- C. Glass-Fiber Board Insulation: ASTM C726, nominal density of 3 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F, thickness as indicated.

- D. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.
- E. 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 AWWA C2; not less than 1-1/2 inches thick.
- F. Security Grilles: [3/4-inch] <Insert dimension> diameter, ASTM A1011 steel bars spaced [6 inches] <Insert dimension> o.c. in one direction and [12 inches] <Insert dimension> o.c. in the other[, **shop-primed for field finish**]. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187.
- G. Underlayment:
 - 1. Felt: ASTM D226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
 - 2. Polyethylene Sheet: 6-mil-thick polyethylene sheet complying with ASTM D4397.
 - 3. Slip Sheet: Building paper, 3 lb/100 sq. ft. minimum, rosin sized.
 - 4. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
- H. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
- I. 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.
- J. Elastomeric Sealant: ASTM C920, elastomeric 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.
- K. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.
- L. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify dimensions of roof openings for roof accessories. 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.
- C. Security Grilles: Weld bar intersections and [, **using tamper-resistant bolts, attach the**] ends of bars to structural frame or primary curb walls.
- D. Seal joints with [**elastomeric**] [**or**] [**butyl**] sealant as required by roof accessory manufacturer.
- 3.2 REPAIR AND CLEANING
- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780.
- B. Touch up factory-primed surfaces with compatible primer ready for field painting according to *Section 099113 – Exterior Painting*.
- C. Clean exposed surfaces according to manufacturer's written instructions.
- D. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077200