

## 07723 RA HATCHES AND SMOKE VENTS

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*SPECIFIER: All roof-related items above or outside the structural roof deck, including such work as blocking, insulation, membrane, sheet metal, hatches, vents, and equipment curbs are components of the Roof Assembly.*

*The entire Roof Assembly carries a 20-year special warranty by the roof membrane producer, as specified in the lead RA section, 07500, and 07501 .*

*In this hatch & vent section there is also a 5-year special warranty by the hatch and vent producer.*

*Note that no wood blocking or components are permitted.*

*CSI 2004 MasterFormat number: 07 72 30.*

*Optional keynotes to Drawings follow each major product title, for A/Es using National CAD Standard.*

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### PART 1 GENERAL

#### 1.1 RELATED REQUIREMENTS

- A. Coordinate Roof Assembly roof insulation work with work before and after. See especially:
  - 1. The lead section (roof membrane) for the entire Roof Assembly, including Special Warranty by SBS mod bit producer/installer 07522

#### 1.2 DEFINITIONS, REFERENCES, AND OVERALL STANDARDS Follow 07500

#### 1.3 QUALITY ASSURANCE

- A. Single Source: Provide roof hatches and smoke vents from a single producer.
- B. Installer's Qualifications. The installer of each part of the Roof Assembly shall:
  - 1. Have 5 years of successful experience in the installation of that roof component.
  - 2. Be currently listed in the MDCPS Pre-Qualified Roofing Contractor List.
- C. Insurer Certification. Assist Board in preparing roof hatch and smoke vent acceptance certification as needed for the fire and extended coverage insurance of the Roof Assembly.
- D. Pre-Installation Meeting. At least 6 weeks before installation of Roof Assembly, the Contractor shall conduct a meeting at the worksite with installers of each part of the Roof Assembly, the A/E, AHJs, and Board representatives.

#### 1.4 SUBMITTALS Follow 01330

- A. Special Warranties. Before making any other submittals, and at least 10 weeks before pre-installation meeting, submit and obtain approval of draft of (or form for) each specified Special Warranty.
- B. Product Data. Description of each product, including standards met, and the following:
  - 1. Thermal resistance values from ASTM C177 or C518 tests.
  - 2. FM 1-150 Wind Resistance Classification.
  - 3. Producer's installation instructions.
- C. Shop Drawings. Roof hatches and smoke vents. Show details for proper installation.

1. Show details of hatch and vent interface between structural deck and roofing. Show ladder-head and upslope cricket locations to ensure coordination..
2. Show the fasteners in hatches and vents needed to fasten to roof structure.

D. Certification, before installation. Letter from producer of hatches and vents, approving the proposed installer.

## 1.5 SPECIAL WARRANTIES

Follow 01786

- A. By Membrane Producer. Provide a 20 year Special Warranty from the roof membrane producer covering correction of defects in the roof hatches and smoke vents component of the Roof Assembly.
- B. By Roof Hatch and Smoke Vent Producer. Provide a 5 year Special Warranty in which the hatch and vent producer agrees to correct the work by replacing hatch and vent units having defects after the producer has exhausted attempts at repair:
  1. See 07500 for full list of requirements that shall be included in this Special Warranty (that will accompany the Roof Assembly Special Warranty).
  2. At the time of project closeout, submit this signed Special Warranty to the roof membrane producer, signed by producer of roof hatches and smoke vents, for transmittal to Contractor, A/E and Board.

## PART 2 PRODUCTS

Follow 01600

### 2.1 ROOF HATCH

[07723.rh]

- A. Performance: The latched hatch cover shall not deform or detach from its curb nor shall the hatch curb deform or detach from the building in winds up to 146 mph. (Negative pressure from wind will vary with each hatch's position on building. See roof wind pressure diagrams, prepared by engineer of record, on Drawings.)
- B. Description. Single leaf, insulated steel hatch cover over insulated steel curb with gasket seal, and heavy-duty hardware.
  1. Double curb walls and hatch cover: 12 ga (0.1046 in.) or heavier hot-dip zinc-iron alloy coated (galvannealed) steel; ASTM A653, A60.
    - a. Counterflashing: 14 ga galvannealed steel.
    - b. At roof slopes greater than 3/4 in./ft, configure curb to match roof pitch.
  2. Hatch cover liner (interior): 22 ga (0.0299 in.) or heavier galvannealed steel.
  3. Curb flanges: 6 in. wide, with 5/8 in. holes spaced 11 to 12 in. around perimeter to receive 5/8 in. expansion bolts to concrete structure below.
  4. Hatch curb height: 24 in. from flanges to rim.
  5. Rim seal: Compressible closed cell EPDM gasket, firmly attached to cover.
  6. Insulation: 2 in. polyisocyanurate foam insulation with R=11.0; ASTM C518.
  7. Reinforcement: Add welded steel reinforcements before galvanizing where needed to withstand project-specific extreme positive and negative wind pressures at various locations as inferred from wind pressure diagrams.
  8. Interior latch: Two-point rotary latch, latchable but not lockable on inside, with its handle positioned as close as possible to center of hatch's length while still reachable by a person on the ladder.
  9. Exterior handle to interior latching mechanism: Latchable, not lockable.

10. Locking: Provide hasp and padlocking loop at interior latch, to receive padlock provided under Door Hardware section.
11. Spring counterbalances: Greased heavy-duty compression springs in telescoping tubes.
12. Hold-open arm: Rubber-clad steel handle that locks door open.
13. Hatch-open detector: Provide a detector to register hatch cover status with the building security system.
14. Accessory products built into hatch units: Heavy duty hinges, cleats, brackets, fasteners, and silicone sealants.
15. Safety Railing: Removable twin-rails mounted on exterior of each side of curb, with easily opened chain barrier at ladder end. Fabricate railings, chain and curb-face mounting brackets of galvanized steel and powder coat in safety yellow. Follow CFR 29 1910.23 and 1910.27.
16. Hatch factory finish: Prime coat + TGIC polyester powder coat.

C. Standard: FM 1-148 rating.

D. Product / Producer. This specification is based on the properties and performance of one Basis of Design (BOD) product. Provide specified BOD product or submit a detailed approval request to use another producer's line.

1. Heavy Duty Roof Hatch, by Nystrom.
2. Equal product in quality and performance by Babcock-Davis, Bilco, or Milcor as approved after review by the A/E, the Board and its Roofing Dept..

## 2.2 SMOKE VENTS

[07723.sv]

- A. Performance: The latched smoke vent covers shall not deform or detach from their curb nor shall the curb deform or detach from the building in winds up to 150 mph. (Negative pressure from wind will vary with each hatch's position on building. See roof wind pressure diagrams, prepared by engineer of record, on Drawings.)
- B. Description. Twin leaf, insulated, steel smoke venting covers over insulated steel curb with gasket seals and heavy-duty hardware.
  1. Double curb walls and vent covers: 12 ga (0.1046 in.) or heavier hot-dip zinc-iron alloy coated (galvannealed) steel; ASTM A653, A60.
    - a. Counterflashing: 14 ga galvannealed steel.
    - b. At roof slopes greater than 3/4 in./ft, configure curb to match roof pitch.
  2. Vent liners: 22 ga (0.0299 in.) or heavier galvannealed steel.
  3. Curb flanges: 6 in. wide, with 5/8 in. holes spaced 11 to 12 in. around perimeter to receive 5/8 in. expansion bolts to concrete structure below.
  4. Vent curb height: 24 in. from flanges to rim.
  5. Seals: Compressible closed cell EPDM gasket, firmly attached to vents .
  6. Insulation: 2 in. polyisocyanurate foam insulation with R=11.0; ASTM C518.
  7. Reinforcement: Add welded steel reinforcements before galvanizing where needed to withstand project-specific extreme positive and negative wind pressures at various locations as inferred from wind pressure diagrams.
  8. Latch: Positive hold / release mechanism that holds venting covers closed against each location's wind uplift force.

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*SPECIFIER: Select one of the two following latch release options depending on whether fusible link or electrical / thermal link is needed for this particular project.*

*Delete the detector if there is to be no electrical security system in the building.*

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- a. Fusible link latch release and detector: Release by fusible melt-out link. Provide for manual override. Provide a vent-open detector to register vent status with the building security system.
  - b. Electrical latch release and detector: Release by 24 or 110 V electric / thermal device linked to alarm system to release vents electrically. Provide for manual override. Provide a vent-open detector to register vent status with the building security system.
9. Manual release: Interior (only) manual release cables.
10. Spring counterbalances: Greased heavy-duty compression springs in telescoping tubes that, when released against a 10 lb/ft<sup>2</sup> wind, are strong enough to open without added manual force.
11. Accessory products built into smoke vent units: Heavy duty hinges, cleats, brackets, fasteners, and silicone sealants.
12. smoke vent factory finish: Prime coat + TGIC polyester powder coat.
- C. Standards:
- 1. UL listed: Fusible melt-out link and other qualities of smoke vent.
  - 2. FM rating: FM 1-148.
- D. Product / Producer. This specification is based on the properties and performance of one Basis of Design (BOD) product. Provide specified BOD product or submit a detailed approval request to use another producer's line.
- 1. Heavy Duty Smoke Vent, by Nystrom.
  - 2. Equal product in quality and performance by Babcock-Davis, Bilco, or Milcor as approved after review by the A/E, the Board and its Roofing Dept.

## PART 3 EXECUTION

Follow 01700

### 3.1 EXAMINATION AND PREPARATION

- A. Verify that field conditions are acceptable and are ready to receive hatches and vents.

### 3.2 INSTALLATION OF ROOF HATCHES AND SMOKE VENTS

- A. Install roof hatches and smoke vents following producer's current published recommendations and instructions, except as more stringently specified herein.
- B. Coordination.
  - 1. Coordinate hatch and smoke vent installation with the work of all other parts of the Roof Assembly work.
  - 2. Fabricate and orient hatches so that cover release can be reached from ladder.
  - 3. At each roof hatch and smoke vent, install electric latch releases, entry detectors, and vent-open detectors to complete and coordinate with the building's electric power, access control and alarm systems.
  - 4. SRB cants will be field-attached to sides of hatches / vents to receive base flashing.
- C. Demonstrate each roof hatch and smoke vent to be in good operating condition. ///