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| This guide specification was prepared utilizing 3-part format recommended by the Construction Specifications Institute (CSI), and generally incorporates recommendations from their Section Format/Page Format, and Master Format, latest Editions, insofar as practicable.Carefully review and edit the text to meet the Project requirements and coordinate this Section with the remainder of the Specifications and the Drawings. Where bracketed text is indicated, e.g. [text], make appropriate selection and delete the remainder of text within additional brackets, highlighting, and bold face type, if any.Consult the manufacturer for assistance in editing this guide specification for specific Project applications where necessary.This Specification was current at the time of publication but is subject to change. Please confirm the accuracy of these specifications with the manufacturer prior to use.  |

**SECTION 07 72 36**

 **SMOKE VENTS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

A. Section Includes:

1. RVF FAHRENHEIT SERIES - DOUBLE LEAF SMOKE VENT

2. RVFV FAHRENHEIT SERIES - DOUBLE LEAF DOMED SMOKE VENT

3. ACCESSORIES: SECURITY GRILLE

B. Related Requirements:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

*SPECIFIER: Revise section numbers and titles in subparagraphs below per CSI MasterFormat and Project requirements.*

2. Section 01 33 00 - Submittal Procedures: For administrative and procedural requirements for processing of submittals during the construction phase.

3. Section 01 77 00 - Closeout Procedures: For administrative and procedural requirements for completion of the Work.

*SPECIFIER: Retain subparagraphs below to suit Project requirements; revise section numbers and titles per project requirements.*

4. Section 07 26 00 - Vapor Retarders

5. Section 07 27 00 - Air Barriers

6. Section 07 50 00 - Membrane Roofing

7. Section 09 9100 - Painting: For field painting of smoke vents.

**1.02 REFERENCES**

*SPECIFIER: Use care when indicating the edition date of the referenced standards; these standards are subject to regular review, and updated; accordingly, review list carefully for inclusion.*

A. Reference Standards:

1. American National Standards Institute/Underwriters Laboratories (ANSI/UL):

a. ANSI/UL 793-2020, Standard for Automatically Operated Roof Vents for Smoke and Heat

2. ASTM International (ASTM):

a. ASTM A36/A36M-14, Standard Specification for Carbon Structural Steel

b. ASTM A153/A153M-16, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

c. ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

d. ASTM A780/A780M -09(2015), Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

e. ASTM A879/A879M-12, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface

f. ASTM A1008/A1008M-15, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

g. ASTM A1011/A1011M-15, Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra High-Strength

h. ASTM B209-14, Standard Specification for Aluminum and Aluminum-Alloy Sheet

and Plate

i. ASTM B221-14, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

j. ASTM F2329-15, Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

*SPECIFIER: Indicate date of current Edition in affect in the Project location if known, to avoid problems with interpretation.*

3. International Code Council (ICC):

a. International Building Code (IBC) - [**current**] Edition.

4. National Fire Protection Association (NFPA):

a. NFPA 204, Standard for Smoke and Heat Venting - [**current**] Edition.

*SPECIFIER: Delete reference to SSPC paint preparation below if security grilles are not selected as an option.*

5. The Society for Protective Coatings (SSPC):

a. SSPC‑SP 5/NACE No. 1 - September 2006, White Metal Blast Cleaning

b. SSPC‑SP 8 - 2004, Pickling

**1.03 ACTION SUBMITTALS**

*SPECIFIER: Revise Section number in the paragraph below to match that used in the Project Manual.*

A. Submit in accordance with Section [**01 33 00**] [**other**]:

1. Product Data:

a. Materials description for smoke vents including details showing mounting type, relationships to surrounding construction, smoke vent type, materials, and construction.

b. Installation instructions for each product specified.

c. Maintenance instructions for proper resetting of fusible links.

2. Shop Drawings:

a. Include details of each smoke vent type, size and description of components, materials, attachment devices, description of frame and finish and construction details.

b. Indicate installation procedures and accessories required for a complete installation.

*SPECIFIER: Delete subparagraph below for standard steel or galvanized steel smoke vents; retain for aluminum or other factory-finished products.*

3. Samples: For each smoke vent cover surface, at least 3 by 5 inches (75 by 125 mm) in size, and in specified finish.

**1.04 QUALITY ASSURANCE**

A. Comply with standards referenced in Article 1.02-REFERENCES.

B. Provide smoke vents produced by a single manufacturer.

**1.05 DELIVERY, STORAGE, AND HANDLING**

A. Deliver, store, and handle smoke vents using means and methods that will prevent damage, deterioration, or loss.

1. Deliver units in manufacturer's original packaging, properly labeled for identification.

**PART 2 - PRODUCTS**

**2.01 SMOKE VENT MANUFACTURERS**

A. Acceptable Manufacturers:

Dur-Red Products – Part of Activar Construction Products Group, Inc.

9702 Newton Avenue S.

Bloomington, MN 55431

(800) 554-6077

info@activarcpg.com

 www.activarcpg.com

B. Substitutions: Manufacturers seeking approval of their products are required to comply with the Owner's Instructions to Bidders, generally contained in the Project Manual.

**2.02 RVF FAHRENHEIT SERIES - DOUBLE LEAF SMOKE VENT**

A. Double leaf insulated smoke vent cover and roof curb.

1. Model No. RVF- [**insert remainder of model number from subparagraph 8 below**].

2. Performance Criteria:

*SPECIFIER: UL-listed smoke vents are limited to units which do not exceed 48 inches by 96 inches (1219.20 mm by 2438.40 mm) in size*

a. Certifications: UL-listed to comply with ANSI/UL 793.

b. Live Load: Supports a minimum live load of 40 pounds per square foot (195 kilograms per square meter), with a maximum deflection of 1/150th of the span.

c. Wind Uplift: Covers remain latched and closed, up to 30 pounds per square foot (147 kilograms per square meter) wind uplift.

d. Covers shall open against 10 pounds per square foot (49 kilograms per square meter) snow or wind load and lock in open position.

3. Cover: Insulated, 0.090-inch (2.29-mm) aluminum exterior and 24-gauge galvanneal steel liner, with continuous bulb-type neoprene door seal.

a. Insulation: 1 inch (25.40 mm) thick polyisocyanurate insulation.

4. Curb and Curb Frame: Insulated, 14-gauge (1.99-mm) galvanneal steel, 15 inches

(381 mm) high with 4-inch (101.60-mm) wide flange for securing to roof deck, and

14-gauge (1.99 mm) integral condensate gutter.

a. Insulation: 1inch (25.40-mm) thick polyisocyanurate insulation.

 5. Finish: Powder coat silver texture.

6. Hardware: Heavy-duty aluminum hinge with bolt pin, fully enclosed automatic pull release latch unit, clear zinc-plated steel hold-open arm with red plastic coating, torsion spring drives open the covers automatically. Shock absorbers control the speed of the leaves as they open, interior and exterior pull handle with red vinyl grip for manual operation.

7. Automatic Operation: Enclosed, spring-loaded, UL‑listed fusible link rated at 165 °F (74 °C), with 5/16-inch (7.94-mm) diameter control rods to activate doors.

*SPECIFIER: Optional sizes are available; contact manufacturer for additional information.*

8. Smoke Vent Opening Size:

a. RVFGA-4848ST: 48 inches x 48 inches (1219.20 mm x 1219.20 mm).

b. RVFGA-4872ST: 48 inches x 72 inches (1219.20 mm x 1828.80 mm).

c. RVFGA-4890ST: 48 inches x 90 inches (1219.20 mm x 2286.00 mm).

d. RVFGA-4896ST: 48 inches x 96 inches (1219.20 mm x 2438.40 mm).

g. RVFGA – width x length [**Insert other size**].

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 9. Model RVF Options:

*SPECIFIER: Select specific options listed below, if desired.*

1. Double wall curb
2. 2.5 inch curb mount flange.
3. Energy-efficient polyisocyanurate insulation, 2 inches (50.8 mm) (R-12) on curb walls.
4. Energy-efficient polyisocyanurate insulation, 2 inches (50.8 mm) (R-12) on curb walls and cover.
5. 24VDC, Resettable McCabe link, 165° degree
6. Other fusible links **[212°F], [280°F], [350°F], [360°F], [370°F], [386°F], [450°F]**

**2.03 RVFV FAHRENHEIT SERIES - DOUBLE LEAF DOMED (DOUBLE-GLAZED) SMOKE VENT**

A. Double leaf double-glazed acrylic (insulating) domed smoke vent cover and roof curb.

1. Model No. RVFV- [**insert remainder of model number from subparagraph 8 below**].

2. Performance Criteria

a. Live Load: Supports a minimum live load of 40 pounds per square foot (195 kilograms per square meter), with a maximum deflection of 1/150th of the span.

b. Wind Uplift: Covers remain latched and closed, up to 30 pounds per square foot (147 kilograms per square meter) wind uplift.

d. Covers shall open against 10 pounds per square foot (49 kilograms per square meter) snow or wind load and lock in open position.

3. Cover: 11-gauge (2.30-mm) aluminum cover with two-piece acrylic dome set in

0.072-inch (1.83-mm) extruded aluminum dome frame with self-contained sloping condensation and weepage gutter, extruded aluminum dome retaining cap, and with continuous bulb-type neoprene door seal.

a. Dome Type: Double-glazed (insulating) acrylic domes, clear over white.

*SPECIFIER: Select dome options and combinations in subparagraph below; dirt and other debris which collect on the roof side of the opening may appear as spots or shadows through the dome when white translucent color is selected as the outer glazing color.*

1. Options for Dome(s)
	1. Double Dome
		1. Outer Glazing Color: [**Clear**] [**White**].
		2. Inner Glazing Color: [**Clear**] [**White**].
	2. Single Dome
		1. Glazing Color: **[Clear] [White]**

4. Curb and Dome Retaining Frame: Insulated, 14-gauge (1.99-mm) galvanneal steel curb, 15 inches (381 mm) high with 4-inch (101.60 mm) wide flange for securing to roof deck, including 14-gauge (1.99-mm) integral condensate gutter, and 14-gauge (1.99-mm) galvanneal steel dome retaining frame.

a. Insulation: 1inch (25.40 mm) thick polyisocyanurate insulation.

 5. Finish: Powder coat silver texture.

6. Hardware: Heavy-duty aluminum hinge with bolt pin, fully enclosed automatic pull release latch unit, clear zinc-plated steel hold-open arm with red plastic coating, torsion spring drives open the covers automatically. Shock absorbers control the speed of the leaves as they open, interior and exterior pull handle with red vinyl grip for manual operation.

7. Automatic Operation: Enclosed, spring-loaded, UL‑listed fusible link rated at 165 °F (74 °C), with 5/16-inch (7.94-mm) diameter control rods to activate doors.

*SPECIFIER: Optional sizes are available; contact manufacturer for additional information.*

8. Smoke Vent Opening Size:

a. RVFVGA-4848ST: 48 inches x 48 inches (1219.20 mm x 1219.20 mm).

b. RVFVGA-4872ST: 48 inches x 72 inches (1219.20 mm x 1828.80 mm).

c. RVFVGA-4890ST: 48 inches x 90 inches (1219.20 mm x 2286.00 mm).

d. RVFVGA-4896ST: 48 inches x 96 inches (1219.20 mm x 2438.40 mm).

e. RVFVGA-6060ST: 60 inches x 60 inches (1524.00 mm x 1524.00 mm).

f. RVFVGA-6096ST: 60 inches x 96 inches (1524.00 mm x 2438.40 mm).

g. RVFVGA- width x length [**Insert other size**].

*SPECIFIER: Other optional are available.*

 9. Model RVFV Options:

1. Double wall curb
2. 2.5 inch curb mount flange.
3. Energy-efficient polyisocyanurate insulation, 2 inches (50.8 mm) (R-12) on curb walls.
4. 24VDC, Resettable McCabe Link, 165° degree
5. Other fusible links **[212°F], [280°F], [350°F], [360°F], [370°F], [386°F], [450°F]**

**2.04 ADDITIONAL OPTIONS**

*SPECIFIER: Retain paragraph below for smoke vent units which incorporate security grilles. Modify sizes and spacing if necessary for your project. Security grilles are shipped loose for site installation to the building structure.*

A. Security Grilles: [1/2‑inch (12.70‑mm) diameter steel bars spaced 6 inches (150 mm) O.C. each way and welded to 1-1/4-inch by 1-1/4-inch (31.75-mm by 31.75-mm) steel angle drop-in flange for mounting underneath and prior to the smoke vent. Powder coat silver texture.

**2.06 MATERIALS**

A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, with cold‑rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.

C. Metallic‑Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Aluminum Extrusions: ASTM B221, Alloy 6063-T5.

E. Aluminum Sheet: ASTM B209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than strength and durability properties of Alloy 5005‑H15; with minimum sheet thickness according to ANSI H35.2.

**2.07 FABRICATION**

A. General: Furnish each smoke vent assembly manufactured as an integral unit, complete and ready for installation.

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Notify the Contractor in writing of conditions detrimental to proper and timely completion of the installation.

2. Verify dimensions of roof openings for roof accessories.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.02 INSTALLATION**

A. General: Comply with manufacturer's written instructions for installing smoke vents and accessories, if any.

1. Install smoke vents level, plumb, true to line and elevation, and without warping, jogs in alignment, buckling, or tool marks.

2. Anchor smoke vents 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 smoke vents and fit them to substrates.

4. Install smoke vents 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.

C. Installation: Install smoke vents so top surface of smoke vent curb is level.

**3.03 FIELD QUALITY CONTROL**

A. Test smoke vents and their components for proper operation according to NFPA 204.

1. Modify smoke vents which fail to pass required testing and test again until smoke vents pass tests.

**3.04 ADJUSTING AND CLEANING**

A. Verify that smoke vents operate properly.

B. Clean, lubricate, and adjust operating mechanism and hardware.

C. Clean exposed surfaces according to manufacturer's written instructions.

D. Replace smoke vents that have been damaged or that cannot be successfully repaired by finish touch up or similar minor repair procedures.

 END OF SECTION