

This guide specification was prepared utilizing 3-part format recommended by the Construction Specifications Institute (CSI), and generally incorporates recommendations from their SectionFormat/Page Format, and MasterFormat7, 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. Double leaf smoke vents, automatically operated.
 2. Accessories:

SPECIFIER: Revise subparagraphs below to suit Project requirements; these accessories are optional, at an additional cost

- a. Resettable fire links.
- b. High temperature fusible link.
- c. Warning light.
- d. 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 793-2011, 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, 2015 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

6. Underwriters Laboratories, Inc. (UL)

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.
- C. Provide smoke vents which are UL listed.

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:

J. L. Industries, Inc., a division of Activar Construction Products Group

9702 Newton Avenue S.
Bloomington, MN 55431

- 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 UFV SERIES - DOUBLE LEAF (SOLID) SMOKE VENT

- A. Style UFV: Double leaf insulated smoke vent cover and roof curb.
1. Model No. UFV- [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; UFV-5 and UFV-6 are not UL listed.

- a. Certifications: UL-listed to comply with ANSI/UL 793.
 - b. Wind Load, Live Load, and Wind Uplift: Tested and approved to support a minimum live load of 40 lbs./ft² (195 kg/m²), with a maximum deflection of 1/150th of the span; maximum negative load of 90 lbs./ft² (438 kg/m²) wind uplift.
 - 1) When release is actuated, covers shall open against 10-lbf/sq. ft. (0.5-kPa) snow or wind load and lock in position.
3. Cover: Insulated, 0.090-inch (2.29-mm) aluminum exterior and 22-gauge (0.79-mm) galvanized steel liner, with continuous bulb-type neoprene door seal.
- a. Insulation:
 - 1) Standard: One inch (25.40 mm) thick fiberglass insulation.

SPECIFIER: Select standard fiberglass insulation above, or; select optional polyisocyanurate insulation and select desired thickness below, each at an additional cost.

- 1) Optional: [**One-inch (25.40-mm)**] [**Two-inch (50.80-mm)**] thick polyisocyanurate insulation.
4. Curb and Curb Frame: Insulated, 14-gauge (1.99-mm) galvanized 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:
 - 1) Standard: One-inch (25.40-mm) thick fiberboard insulation.

SPECIFIER: Select standard fiberboard insulation above, or; select optional polyisocyanurate insulation and select desired thickness below, each at an additional cost.

- 1) Optional: [**One-inch (25.40-mm)**] [**Two-inch (50.80-mm)**] thick polyisocyanurate insulation.

SPECIFIER: Add optional outer curb liner to protect either insulation product selected, at an additional cost, if necessary.

- 2) Optional: 24-gauge (0.70-mm) galvanized steel outer curb liner to protect insulation.
5. Hardware: Heavy gauge aluminum 3/16-inch (4.76-mm) pivot hinges, fully enclosed automatic pull release latch unit, heavy gauge automatic hold-open arm with red vinyl grip, compression spring-operated cylinder, exterior pull handle with red vinyl grip for manual operation.

SPECIFIER: Refer to Article 2.05 for optional high temperature fusible link available at an additional cost.

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

7. Smoke Vent Finish:
 - a. Standard: 2 coats factory-applied primer.

SPECIFIER: Select standard primer finish above, or; select optional powder coat finish and color below, which is available at an additional cost, for units utilizing the optional polyisocyanurate insulation only.

- a. Optional: Factory-applied powder coat finish.
 - 1) Color: **[Bronze]** **[Gray]** **[White]**.

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

8. Smoke Vent Opening Size:
 - a. UFV-1: 48 inches by 48 inches (1219.20 mm by 1219.20 mm).
 - b. UFV-2: 48 inches by 72 inches (1219.20 mm by 1828.80 mm).
 - c. UFV-3: 48 inches by 90 inches (1219.20 mm by 2286.0 mm).
 - d. UFV-4: 48 inches by 96 inches (1219.20 mm by 2438.40 mm).
 - e. UFV-5: 60 inches by 60 inches (1524.0 mm by 1524.0 mm).
 - f. UFV-5: 60 inches by 96 inches (1524.0 mm by 2438.40 mm).
 - g. **[Insert other size]**.

2.03 UDFV SERIES - DOUBLE LEAF DOMED (SINGLE-GLAZED) SMOKE VENT

- A. Style UDFV: Double leaf acrylic (noninsulating) domed smoke vent cover and roof curb.
 1. Model No. UDFV- **[insert remainder of model number from subparagraph 8 below]**.
 2. Performance Criteria:
 - a. Wind Load, Live Load, and Wind Uplift: Tested and approved to support a minimum live load of 40 lbs./ft² (195 kg/m²), with a maximum deflection of 1/150th of the span, maximum negative load of 90 lbs./ft² (438 kg/m²) wind uplift.
 - 1) When release is actuated, covers shall open against 10-lbf/sq. ft. (0.5-kPa) snow or wind load and lock in position.
 3. Cover: 11-gauge (2.30-mm) aluminum cover with one-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: Single-glazed acrylic dome.

SPECIFIER: Select dome color in subparagraph below.

- 1) Color: **[White, translucent]** **[Colorless, transparent]**.

4. Curb and Dome Retaining Frame: Insulated, 14-gauge (1.99-mm) galvanized 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) galvanized steel dome retaining frame.
 - a. Insulation:
 - 1) Standard: One-inch (25.40-mm) thick fiberboard insulation.

SPECIFIER: Select standard fiberboard insulation above, or; select optional polyisocyanurate insulation and select desired thickness below, each at an additional cost.

- 1) Optional: **[One-inch (25.40-mm)]** **[Two-inch (50.80-mm)]** thick polyisocyanurate insulation.

SPECIFIER: Add optional outer curb liner to protect either insulation product selected, at an additional cost, if necessary.

- 2) Optional: 24-gauge (0.70-mm) galvanized steel outer curb liner to protect insulation.

5. Hardware: Heavy gauge aluminum 3/16-inch (4.76 mm) pivot hinges, fully enclosed automatic pull release latch unit, heavy gauge automatic hold-open arm with red vinyl grip, compression spring-operated cylinder, exterior pull handle with red vinyl grip for manual operation.

SPECIFIER: Refer to Article 2.05 for optional high temperature fusible link available at an additional cost.

6. Automatic Operation: Enclosed, spring-loaded, UL-listed fusible link rated at 165 deg F (74 deg C), with 5/16-inch (7.94-mm) diameter control rods to activate doors.
7. Smoke Vent Finish: 2 coats factory-applied primer.

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

8. Smoke Vent Opening Size:
 - a. UDFV-1: 48 inches by 48 inches (1219.20 mm by 1219.20 mm).
 - b. UDFV-2: 48 inches by 72 inches (1219.20 mm by 1828.80 mm).
 - c. UDFV-3: 48 inches by 90 inches (1219.20 mm by 2286 mm).
 - d. UDFV-4: 48 inches by 96 inches (1219.20 mm by 2438.40 mm).
 - e. UDFV-5: 60 inches by 60 inches (1524.0 mm by 1524.0 mm).
 - f. UDFV-5: 60 inches by 96 inches (1524.0 mm by 2438.40 mm).
 - g. **[Insert other size]**.

2.04 UDDFV SERIES - DOUBLE LEAF DOMED (DOUBLE-GLAZED) SMOKE VENT

- A. Style UDDFV: Double leaf acrylic (insulating) domed smoke vent cover and roof curb.
 1. Model No. UDDFV- **[insert remainder of model number from subparagraph 8 below]**.
 2. Performance Criteria:
 - a. Wind Load, Live Load, and Wind Uplift: Tested and approved to support a minimum live load of 40 lbs./ft² (195 kg/m²), with a maximum deflection of 1/150th of the span, maximum negative load of 90 lbs./ft² (438 kg/m²) wind uplift.
 - 1) When release is actuated, covers shall open against 10-lbf/sq. ft. (0.5-kPa) snow or wind load and lock in 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 dome.

SPECIFIER: Select dome color(s) 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) Outer Glazing Color: **[Colorless transparent] [White translucent]**.
 - 2) Inner Glazing Color: **[Colorless transparent] [White translucent]**.
4. Curb and Dome Retaining Frame: Insulated, 14-gauge (1.99-mm) galvanized 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) galvanized steel dome retaining frame.
 - a. Insulation:
 - 1) Standard: One-inch (25.40-mm) thick fiberboard insulation.

SPECIFIER: Select standard fiberboard insulation above, or; select optional polyisocyanurate insulation and select desired thickness below, each at an additional cost.

- 1) Optional: [**One-inch (25.40-mm)**] [**Two-inch (50.80-mm)**] thick polyisocyanurate insulation.

SPECIFIER: Add optional outer curb liner to protect either insulation product selected, at an additional cost, if necessary.

- 2) Optional: 24-gauge (0.70-mm) galvanized steel outer curb liner to protect insulation.
5. Hardware: Heavy gauge aluminum 3/16-inch (4.76 mm) pivot hinges, fully enclosed automatic pull release latch unit, heavy gauge automatic hold-open arm with red vinyl grip, compression spring-operated cylinder, exterior pull handle with red vinyl grip for manual operation.

SPECIFIER: Refer to Article 2.05 for optional high temperature fusible link available at an additional cost.

6. Automatic Operation: Enclosed, spring-loaded, UL-listed fusible link rated at 165 deg F (74 deg C), with 5/16-inch (7.94-mm) diameter control rods to activate doors.
7. Smoke Vent Finish: 2 coats factory-applied primer.

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

8. Smoke Vent Opening Size:
 - a. UDDFV-1: 48 inches by 48 inches (1219.20 mm by 1219.20 mm).
 - b. UDDFV-2: 48 inches by 72 inches (1219.20 mm by 1828.80 mm).
 - c. UDDFV-3: 48 inches by 90 inches (1219.20 mm by 2286 mm).
 - d. UDDFV-4: 48 inches by 96 inches (1219.20 mm by 2438.40 mm).
 - e. UDDFV-5: 60 inches by 60 inches (1524.0 mm by 1524.0 mm).
 - f. UDDFV-5: 60 inches by 96 inches (1524.0 mm by 2438.40 mm).
 - g. [**Insert other size**].

SPECIFIER: Options specified below are available at an additional cost.

2.05 ADDITIONAL OPTIONS

SPECIFIER: Contact smoke vent manufacturer for further information on the McCabe Fire Link products and their availability.

- A. Resettable Fire Link: McCabe⁷ RESETTABLE Bi-metal Fire Links for manual or automatic resetting of fusible links.
- B. High Temperature Fusible Link: Enclosed, spring-loaded, UL-listed fusible link rated at 370 deg F (187 deg C).
- C. Warning Light: Xenon type strobe light for detection and for alerting personnel that the smoke vent or opening is in an OPEN position.
 1. Light Location, Characteristics and Operation:
 - a. Light is equipped with a magnetic base and is mounted to the inside surface of the cover or door.
 - b. Bright, red light which emits 60 double flashes per minute and is activated as the smoke vent is lifted upward 30 degrees.
 - c. Light automatically turns off when the smoke vent is returned to the CLOSED position.
 2. Light comes complete with 2 new D-Cell alkaline batteries which provide 50 to 60 flashing hours.

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.

- D. Security Grilles: [1/2-inch (12.70-mm)] [insert other dimension] diameter steel bars complying with ASTM A1011/A1011M, 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 frame; factory finished as follows:
1. Surface Preparation: Remove mill scale and rust, if any, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, or SSPC-SP 8.
 2. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment.
 3. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free, universal primer; selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats under prolonged exposure.
 4. Ship security grilles loose, ready for installation to the roof opening.

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 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 components with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing smoke vents directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene sheet.
3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of smoke vents for waterproof performance.

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

SPECIFIER: Delete optional security grilles below if none furnished with the smoke vent(s).

D. Security Grilles: Weld steel angle frame to building structure.

E. Surface Repairs:

1. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780.
2. Primed Surfaces: Touch up factory-primed surfaces with compatible primer ready for field painting if scheduled.
3. Finished Surfaces: Touch up factory-finished surfaces to eliminate abrasions and similar defects.

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