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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 SectionFormat™/Page Format™ , and MasterFormat™, 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.  Shape  Description automatically generated with low confidence |

 **SECTION 08 91 26**

 **DOOR LOUVERS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

A. Section Includes:

*SPECIFIER: Revise subparagraphs below to suit Project requirements.*

1. Louvers for doors, including:

a. Frames;

b. louvers, and;

c. fasteners.

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.*

*SPECIFIER: Delete Section 01 21 00 - Allowances if locations are clearly shown on the Drawings and sizes are either indicated alongside the locations or specified herein.*

2. Section 01 21 00 - Allowances: For cash or quantity allowances covering door louvers.

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

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

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

5. Section [**08 10 00 - Doors and Frames**] [**other**]: For door types to receive louvers.

6. Section 09 91 00 - Painting: For field painting of door louvers.

*SPECIFIER: Retain this Article if provision of door louvers are covered under an allowance.*

**1.02 ALLOWANCES**

*SPECIFIER: Retain products and work included in this Section that are covered by cash or quantity allowance. Do not include amounts. Insert descriptions of items in Part 2 or 3 to provide information affecting the cost of the Work that is not included under the allowance.*

A. Door louvers are part of a door louver allowance.

**1.03 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. ASTM International (ASTM):

a. ASTM A153/A153M-09, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

b. ASTM A240/A240M-13b, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

c. ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

d. 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

e. ASTM A1008/A1008M-12a, 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

f. ASTM F2329-11, 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.*

2. International Code Council (ICC):

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

*SPECIFIER: Keep subparagraph below for jurisdictions which require Warnock-Hersey labeling based upon UL testing procedures and requirements; coordinate with subparagraphs 3 and 6 below.*

3. Intertek Testing Services/Warnock-Hersey International (ITS/WHI)

a. UL 10B-2008, Standard for Fire Tests of Door Assemblies

b. UL 10C-2009, Standard for Positive Pressure Fire Tests of Door Assemblies

4. National Fire Protection Association (NFPA):

a. NFPA 80-2013, Standard for Fire Doors and Other Opening Protectives

b. NFPA 252-2012, Standard Methods of Fire Tests of Door Assemblies

*SPECIFIER: Keep subparagraph below for Canadian projects with subparagraph 4 above, and delete subparagraph 7 below.*

5. Standards Council of Canada/Underwriters Laboratories of Canada (CAN/ULC):

a. CAN/ULC-S104-10, Standard Method for Fire Tests of Door Assemblies

*SPECIFIER: Keep subparagraph below for jurisdictions which require UL labeling based upon their testing procedures and requirements; coordinate with subparagraph 3 above.*

6. Underwriters Laboratories, Inc. (UL)

a. UL 10B-2008, Standard for Fire Tests of Door Assemblies

b. UL 10C-2009, Standard for Positive Pressure Fire Tests of Door Assemblies

c. Classified Building Materials Index

**1.04 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 door louvers including details showing mounting type, frame type, materials, and construction.

b. Installation instructions for each product specified.

2. Shop Drawings:

a. Include details of each frame type, elevation of frame and louver, anchorage and accessory items.

b. Schedule showing each type of door louver, locations, sizes, and other data pertinent to installation

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

**1.05 QUALITY ASSURANCE**

A. Comply with standards referenced in Article 1.03 REFERENCES.

B. Wherever a fire-resistance classification is indicated, provide door louver from manufacturer listed in Underwriters Laboratories, Inc.; "Classified Building Materials Index" for rating shown.

*SPECIFIER: Select applicable Label in subparagraph below.*

1. Provide [**UL**] [**WHI**] Label on each fire-rated door louver assembly.

**1.06 DELIVERY, STORAGE, AND HANDLING**

A. Deliver, store, and handle door louvers 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 DOOR LOUVER MANUFACTURERS**

A. Acceptable Manufacturers:

Air Louvers - a division of Activar Construction Products Group, Inc.

9702 Newton Ave S

Bloomington, MN 55431

(800) 554-6077

www.activarcpg.com

sales@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 PERFORMANCE REQUIREMENTS**

*SPECIFIER: Delete paragraph below if no fire-rated louvers are specified.*

A. Fire‑Rated Louvers: Units complying with NFPA 80 that are identical to louver assemblies tested for fire‑test‑response characteristics according to the following test method, and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. NFPA 252 or UL 10B for fire‑rated louver assemblies.

B. Free Air Flow Area:

*SPECIFIER: Indicate louver assembly Model number and applicable free air flow area in subparagraph below.*

1. Model 600A1: 60 percent.

2. Model 700A: 50 percent.

3. Model 800A1: 50 percent.

4. Model 1900A: 45 percent.

**2.03 600 SERIES - INVERTED V-BLADE LOUVER**

***SPECIFIER: Example; Model No. 600A1 1212B which represents a steel louver and frame, 12 inches by 12 inches (304.80 mm by 304.80 mm) with Mineral Bronze powder coat finish. Louver assembly fits a 1-3/4 inch (44.45 mm) thick door; for other door thicknesses, refer to Models 600CORE (any size door), 600C (any size door), or 600A for 1-3/8 inch (34.925 mm) to 1-3/4 inch (44.45 mm) thick doors.***

A. Inverted V-Blade Louver Assembly, Model No. 600A1 - [**insert remainder of model number from manufacturer's chart**]: Inverted V-Blade louver with 1/2-inch (12.70-mm) blade spacing resulting in a non-vision or sight-restrictive view, attached to 1-inch (25.40 mm) deep welded frame, by interlocking construction, and subsequently mounted in a surrounding frame.

1. Louver and Frame Material: 20-gauge cold-rolled steel (CRS).

2. Surrounding Frame: 2-piece frame 1-1/4 inches (31.75 mm) high with corners mitered and welded, and with pre-punched mounting holes on the security side of frame.

3. Louver and Frame Finish: Factory-applied powder coat finish.

*SPECIFIER: Select color option in subparagraph below; Mineral Bronze (B) is the standard color and will be furnished if no other color is specified; optional colors listed are available at no additional cost.*

a. Color Options: [**Mineral Bronze (B)**] [**Gray Primer (G)**] [**Black (BK)**] [**Flat Black (FBK)**] [**White (W)**] [**SC Beige (SB)**] [**Silver (SI)**] [**Red (R)**] [**Sand (S)**] [**AMS Beige (AB)**] [**Gray Hammertone (GH)**].

4. Frame Size: [**Insert size selected from manufacturer's chart of available sizes, or indicate custom size**].

5. Fasteners: Flathead Phillips drive SMS, #8 by 3/4 inch (19.05 mm); finish to match frames.

6. Options:

*SPECIFIER: Select specific options listed below;* *indicate selections as a part of the Model number in paragraph A above.; these options are available at an additional cost.*

a. Louver and Frame Material: [**Galvannealed (J)**] [**Electro zinc plated (E)**] [**20-gauge stainless steel with factory-applied ground and polished #4 directional satin finish (S)**] [**16-gauge cold-rolled steel**].

b. Fasteners: [**Torx security fasteners**] [**other**].

c. Screens:

1) Insect Screen: 18 by 14 mesh [**aluminum**] [**bronze**] [**fiberglass**] [**stainless steel**] screen material in roll-formed aluminum frame.

2) Bird Screen: 1/4 inch or 1/2 inch (6.35 mm or 12.70 mm) galvanized steel mesh in roll-formed aluminum frame.

3) Fasteners: [**Sheet metal screws**] [**Tape**].

**2.04 700 SERIES - INVERTED SPLIT Y-BLADE LOUVER**

***SPECIFIER: Example; Model No. 700A 1212B which represents a steel louver and frame, 12 inches by 12 inches (304.80 mm by 304.80 mm) with Mineral Bronze powder coat finish. Louver assembly fits a minimum 1-3/8 inch (34.925 mm) thick door.***

A. Inverted Split Y-Blade Louver Assembly, Model No. 700A - [**insert remainder of model number from manufacturer's chart**]: Two rows of Inverted split Y-blades with 1-inch (25.40 mm) blade spacing, resulting in a non-vision or sight-restrictive view, attached to 3/4-inch (19.05 mm) deep welded frame, by interlocking construction, and subsequently mounted in a surrounding frame.

1. Louver and Frame Material: 18-gauge cold-rolled steel (CRS).

2. Surrounding Frame: 2-piece frame 1-1/4 inches (31.75 mm) high with corners mitered and welded, and with pre-punched mounting holes for attachment to door from 2 sides.

3. Louver and Frame Finish: Factory-applied powder coat finish.

*SPECIFIER: Select color option in subparagraph below; Mineral Bronze (B) is the standard color and will be furnished if no other color is specified; optional colors listed are available at no additional cost.*

a. Color Options: [**Mineral Bronze (B)**] [**Gray Primer (G)**] [**Black (BK)**] [**Flat Black (FBK)**] [**White (W)**] [**SC Beige (SB)**] [**Silver (SI)**] [**Red (R)**] [**Sand (S)**] [**AMS Beige (AB)**] [**Gray Hammertone (GH)**].

4. Frame Size: [**Insert size selected from manufacturer's chart of available sizes, or indicate custom size**].

5. Fasteners: Flathead Phillips drive SMS, #8 by 3/4 inch (19.05 mm); finish to match frames.

6. Options:

*SPECIFIER: Select specific options listed below;* *indicate selections as a part of the Model number in paragraph A above.; these options are available at an additional cost.*

a. Louver and Frame Material: [**Galvannealed (J)**] [**Electro zinc plated (E)**] [**18-gauge stainless steel with factory-applied ground and polished #4 directional satin finish (S)**] [**16-gauge cold-rolled steel**].

b. Fasteners: [**Torx security fasteners**] [**other**].

c. Screens:

1) Insect Screen: 18 by 14 mesh [**aluminum**] [**bronze**] [**fiberglass**] [**stainless steel**].

2) Bird Screen: 1/4 inch or 1/2 inch (6.35 mm or 12.70 mm) galvanized steel mesh.

3) Fasteners: Sheet metal screws or rivets.

**2.05 800 SERIES - INVERTED Y-BLADE LOUVER**

***SPECIFIER: Example; Model No. 800A1 1212B which represents a steel louver and frame, 12 inches by 12 inches (304.80 mm by 304.80 mm) with Mineral Bronze powder coat finish. Louver assembly fits a 1-3/4 inch (44.45 mm) thick door; for other door thicknesses, refer to Models 800CORE (any size door), 800C (any size door), or 800A for 1-3/8 inch (34.925 mm) to 1-3/4 inch (44.45 mm) thick doors.***

A. Inverted Y-Blade Louver Assembly, Model No. 800A1 - [**insert remainder of model number from manufacturer's chart**]: Inverted Y-Blade louver with 1-inch (25.40-mm) blade spacing resulting in a non-vision or sight-restrictive view, attached to 1-inch (25.40 mm) deep welded frame, by interlocking construction, and subsequently mounted in a surrounding frame.

1. Louver and Frame Material: 20-gauge steel blades and 18-gauge cold-rolled steel (CRS) frame.

2. Surrounding Frame: 2-piece frame 1-1/4 inches (31.75 mm) high with corners mitered and welded, and with pre-punched mounting holes on the security side of frame.

3. Louver and Frame Finish: Factory-applied powder coat finish.

*SPECIFIER: Select color option in subparagraph below; Mineral Bronze (B) is the standard color and will be furnished if no other color is specified; optional colors listed are available at no additional cost.*

a. Color Options: [**Mineral Bronze (B)**] [**Gray Primer (G)**] [**Black (BK)**] [**Flat Black (FBK)**] [**White (W)**] [**SC Beige (SB)**] [**Silver (SI)**] [**Red (R)**] [**Sand (S)**] [**AMS Beige (AB)**] [**Gray Hammertone (GH)**].

4. Frame Size: [**Insert size selected from manufacturer's chart of available sizes, or indicate custom size**].

5. Fasteners: Flathead Phillips drive SMS, #8 by 3/4 inch (19.05 mm); finish to match frames.

6. Options:

*SPECIFIER: Select specific options listed below;* *indicate selections as a part of the Model number in paragraph A above.; these options are available at an additional cost.*

a. Louver and Frame Material: [**Galvannealed (J)**] [**Electro zinc plated (E)**] [**20-gauge stainless steel louver blades and 18-gauge stainless steel frame, each with factory-applied ground and polished #4 directional satin finish (S)**] [**16-gauge cold-rolled steel**].

b. Fasteners: [**Torx security fasteners**] [**other**].

c. Screens:

1) Insect Screen: 18 by 14 mesh [**aluminum**] [**bronze**] [**fiberglass**] [**stainless steel**] screen material in roll-formed aluminum frame.

2) Bird Screen: 1/4 inch or 1/2 inch (6.35 mm or 12.70 mm) galvanized steel mesh in roll-formed aluminum frame.

3) Fasteners: [**Sheet metal screws**] [**Tape**] [**Plastic clips**].

**2.06 1900 SERIES - FIRE-RATED ADJUSTABLE Z-BLADE LOUVER**

***SPECIFIER: Example; Model No. 1900A 1212B which represents a steel louver and frame, 12 inches by 12 inches (304.80 mm by 304.80 mm) with Mineral Bronze powder coat finish. Louver assembly fits a 1-3/4 inch (44.45 mm) thick door.***

A. Fire-Rated Adjustable Z-Blade Louver Assembly, Model No. 1900A - [**insert remainder of model number from manufacturer's chart**]: Z-Blade louvers riveted to operating bar and frame at 1-inch intervals to welded 1-9/16 inch deep frame. A 16-gauge steel mechanical stop 5/8-inch by 3/8-inch (15.875 mm by 9.525 mm) holds blades open. Louver is subsequently mounted in a surrounding frame.

1. Louver and Frame Material: 16-gauge cold-rolled steel (CRS) louver blades and 18-gauge cold-rolled steel (CRS) frame.

2. Surrounding Frame: 2-piece frame 1-1/4 inches (31.75 mm) high with corners mitered and welded, and with pre-punched mounting holes on the security side of frame.

3. Louver and Frame Finish: Factory-applied powder coat finish.

*SPECIFIER: Select color option in subparagraph below; Mineral Bronze (B) is the standard color and will be furnished if no other color is specified; optional colors listed are available at no additional cost.*

a. Color Options: [**Mineral Bronze (B)**] [**Gray Primer (G)**] [**Black (BK)**] [**Flat Black (FBK)**] [**White (W)**] [**SC Beige (SB)**] [**Silver (SI)**] [**Red (R)**] [**Sand (S)**] [**AMS Beige (AB)**] [**Gray Hammertone (GH)**].

4. Frame Size: [**Insert size selected from manufacturer's chart of available sizes, or indicate custom size**].

*SPECIFIER: This louver is rated for use in doors fire-rated up to 1-1/2 hour rating. Size is restricted to a maximum of 576 square inches (14630 square mm), 24 inches wide by 24 inches high (609.60 mm wide by 609.60 mm high), and a minimum width and height of 10 inches and 6 inches (254 mm and 152..40 mm) respectively.*

5. Fire-Rating: Approved for use in doors of fire‑protection rating indicated.

a. Labeling: Appropriate label stamped or applied to frame, and clearly visible.

6. Fasteners: Flathead Phillips drive SMS, #8 by 3/4 inch (19.05 mm); finish to match frames.

7. Options:

*SPECIFIER: Select specific options listed below;* *indicate selections as a part of the Model number in paragraph A above.; these options are available at an additional cost.*

a. Door Thickness: For 1-3/4 inch (44.45 mm) door.

b. Louver and Frame Material: [**Electro zinc plated (E)**].

c. Fasteners: [**Torx security fasteners**] [**other**].

B. Louver Operation:

1. Manual Operation: Adjustable louver blades pivot on cadmium-plated steel rivets, and are operated by a manual adjusting lever.

2. Fire Event Operation: A spring-loaded fusible link mechanism is incorporated into the design, and upon melting of the link when the temperature reaches 165 degrees F (73.889 degrees Celsius), the action bar is actuated which closes and locks all of the blades.

**2.07 MATERIALS**

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

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

C. Stainless‑Steel Sheet: ASTM A240.

**2.08 FABRICATION**

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

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes.

C. Frames: Grind exposed welds smooth and flush with adjacent surfaces.

1. Provide mounting holes in frames for attachment of units to doors.

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

**3.02 INSTALLATION**

A. General: Comply with manufacturer's written instructions for installing door louvers.

B. Install door louvers in door openings to result in finished assembly which meets the applicable fire rating of doors, if any.

**3.03 ADJUSTING AND CLEANING**

A. Remove louver frames that are warped, bowed, or otherwise damaged, and replace with new components.

B. On completion of door louver installation, clean exposed surfaces as recommended by manufacturer.

 END OF SECTION