

**SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies steel doors, steel frames and related components.
- B. Terms relating to steel doors and frames as defined in ANSI A123.1 and as specified.

1.2 RELATED WORK

- A. Aluminum frames entrance work: Section 08 41 13, ALUMINUM ENTRANCES AND STORE FRONTS.
- B. Builders Hardware: Section 08 71 00, DOOR HARDWARE.

1.3 TESTING

An independent testing laboratory shall perform testing.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

1.5 SHIPMENT

- A. Prior to shipment label each door and frame to show location, size, door swing and other pertinent information.
- B. Fasten temporary steel spreaders across the bottom of each door frame.

1.6 STORAGE AND HANDLING

- A. Store doors and frames at the site under cover.
- B. Protect from rust and damage during storage and erection until completion.

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. Federal Specifications (Fed. Spec.):
L-S-125B.....Screening, Insect, Nonmetallic
- C. Door and Hardware Institute (DHI):
A115 Series.....Steel Door and Frame Preparation for Hardware,
Series A115.1 through A115.17 (Dates Vary)
- D. Steel Door Institute (SDI):
113-1979.....Apparent Thermal Performance for Steel Door and
Frame Assemblies
114-1979.....Acoustical Performance for Steel Door and Frame
Assemblies
A250.8-98.....Standard Steel Doors and Frames

- E. American Society for Testing and Materials (ASTM):
 - A167-99.....Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
 - A568/568-M-03.....Steel, Sheet, Carbon, and High-Strength, Low-alloy, Hot-Rolled and Cold-Rolled
 - A1008-04.....Steel, sheet, Cold-Rolled, Carbon, Structural, High Strength Low Alloy and High Strength Low Alloy with Improved Formability
 - B209/209M-02.....Aluminum and Aluminum-Alloy Sheet and Plate
 - B221/221M-02.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes
 - D1621-00.....Compressive Properties of Rigid Cellular Plastics
 - D3656-97.....Insect Screening and Louver Cloth Woven from Vinyl Coated Glass Yarns
 - E90-02.....Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
- F. The National Association Architectural Metal Manufacturers (NAAMM):
 - Metal Finishes Manual (1988 Edition)
- G. National Fire Protection Association (NFPA):
 - 80-99.....Fire Doors and Fire Windows
- H. Underwriters Laboratories, Inc. (UL):
 - Fire Resistance Directory
- I. Inchcape Testing Services (ITS):
 - Certifications Listings...Latest Edition
- J. Factory Mutual System (FM):
 - Approval Guide

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A167, Type 302 or 304; finish, NAAMM Number 4.
- B. Sheet Steel: ASTM A1008, cold-rolled for panels (face sheets) of doors.
- C. Anchors, Fastenings and Accessories: Fastenings anchors, clips connecting members and sleeves from zinc coated steel.
- D. Insect Screening: ASTM D3656, 18 by 18 regular mesh.
- E. Aluminum Sheet: ASTM B209/209M.
- F. Aluminum, Extruded: ASTM B221/221M.
- G. Prime Paint: Paint that meets or exceeds the requirements of A250.8.

2.2 FABRICATION GENERAL

A. Door Designations:

1. As indicated on the drawings.
2. Core constructions are as follows:
 - a. Kraft honeycomb
 - b. Polyurethane
 - c. Polystyrene
 - d. Unitized steel Grid
 - e. Mineral fiberboard
 - f. Vertical steel stiffeners

B. GENERAL:

1. Follow SDI A250.8 for fabrication of standard steel doors, except as specified otherwise. Doors to receive hardware specified in Section 08710, Door Hardware. Tolerances as per SDI A250.8. Thickness, 44 mm (1-3/4 inches), unless otherwise shown.
2. Close top edge of exterior doors flush and seal to prevent water intrusion.
3. When vertical steel stiffeners are used for core construction, fill spaces between stiffeners with mineral fiber insulation.

C. Standard Duty Doors: SDI A250.8, Level 1, of size and design shown. Use for interior locations only.

D. Heavy Duty Doors: SDI A250.8, Level 2, Model 2 of size and design shown. Core construction types b, c, e, or f, for exterior doors.

2.3 METAL FRAMES

A. General:

1. SDI A250.8, 1.3 mm (0.053 inch) thick sheet steel, types and styles as shown or scheduled.
2. Frames for exterior doors: Fabricate from 1.7 mm (0.067 inch) thick galvanized steel conforming to ASTM A525.
3. Knocked-down frames are not acceptable.

B. Reinforcement and Covers:

1. SDI A250.8 for, minimum thickness of steel reinforcement welded to back of frames.
2. Provide mortar guards securely fastened to back of hardware reinforcements.

C. Glazed Openings:

- a. Integral stop on exterior, corridor, or security side.
- b. Design rabbet width and depth to receive glazing material or panel shown or specified.

D. Frame Anchors:

1. Floor anchors:
 - a. Where floor fills occur, provide extension type floor anchors to compensate for depth of fill.
 - b. At bottom of jamb use 1.3 mm (0.053 inch) thick steel clip angles welded to jamb and drilled to receive two 6 mm (1/4 inch) floor bolts.
 - c. Where mullions occur, provide 2.3 mm (0.093 inch) thick steel channel anchors, drilled for two 6 mm (1/4 inch) floor bolts and frame anchor screws.
 - d. Where sill sections occur, provide continuous 1 mm (0.042 inch) thick steel rough bucks drilled for 6 mm (1/4 inch) floor bolts and frame anchor screws. Space floor bolts at 50 mm (24 inches) on center.
2. Jamb anchors:
 - a. Locate anchors on jambs near top and bottom of each frame, and at intermediate points not over 600 mm (24 inches) apart.
 - b. Form jamb anchors of not less than 1 mm (0.042 inch) thick steel unless otherwise specified.
 - c. Anchors set in masonry: Use adjustable anchors designed for friction fit against the frame and for extension into the masonry not less than 250 mm (10 inches). Use one of following type:
 - 1) Wire loop type of 5 mm (3/16 inch) diameter wire.
 - 2) T-shape or strap and stirrup type of corrugated or perforated sheet steel.
 - d. Anchors for stud partitions: Either weld to frame or use lock-in snap-in type. Provide tabs for securing anchor to the sides of the studs.

2.4 LOUVERS

- A. General:
 1. Sight proof type with stationary blades the full thickness of the door.
 2. Design lightproof louvers to exclude passage of light but permit free ventilation.
 3. Provide insect screen and wire guards at exterior doors, except where doors are located below completely enclosed areaways, the wire guard is not required.

B. Fabrication:

1. Steel louvers 0.8 mm (0.032 inch) thick for interior doors, and 1.3 mm (0.053 inch) inch thick for exterior doors.
2. Fabricate louvers as complete units. Install in prepared cutouts in doors.
3. Weld stationary blades to frames. Weld louvers into door openings.

C. Screen frames:

1. Frame of either extruded aluminum or tubular aluminum.
2. Fabricate frame to hold wire fabric in a channel with a retaining bar anchor and to mount on surface of door with screws.
3. Do not lap frame over louver opening.
4. Miter corners of frame members and join by concealed mechanical fastenings extending about 57 mm (2-1/4 inches) into ends of each member.
5. Drill frame and doors for screw attachment. Space screws 50 mm (2 inches) from end of each leg of frame and not over 300 mm (12 inches) on center between end screws.
6. Finish: Clear anodized finish, 0.4 mils thick.
7. Insect screens: Fasten insect screens to interior side of doors with retaining bar against door and not exposed to view.
8. Wire guards:
 - a. Wire fabric shall be wire guard screen as specified.
 - b. Fasten wire guard to exterior side of door with retaining bar against door and not exposed to view.

2.5 SHOP PAINTING

- A. SDI A250.8.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Plumb, align and brace frames securely until permanent anchors are set.
1. Use triangular bracing near each corner on both sides of frames with temporary wood spreaders at midpoint.
 2. Use wood spreaders at bottom of frame if the shipping spreader is removed.
 3. Protect frame from accidental abuse.
 4. Where construction will permit concealment, leave the shipping spreaders in place after installation, otherwise remove the spreaders after the frames are set and anchored.
 5. Remove wood spreaders and braces only after the walls are built and jamb anchors are secured.

B. Floor Anchors:

1. Anchor the bottom of door frames to floor with two 6 mm (1/4 inch) diameter expansion bolts. Use 9 mm (3/8 inch) bolts on lead lined frames.
2. Power actuated drive pins may be used to secure frame anchors to concrete floors.

C. Jamb Anchors:

1. Anchors in masonry walls: Embed anchors in mortar. Fill space between frame and masonry wall with grout or mortar as walls are built.
2. Coat frame back with a bituminous coating prior to lining of grout filling in masonry walls.
3. Secure anchors to sides of studs with two fasteners through anchor tabs. Use steel drill screws to steel studs.

3.2 INSTALLATION OF DOORS AND APPLICATION OF HARDWARE

- A. Install doors and hardware as specified in Section 08 75 00, INSTALLATION OF DOORS AND HARDWARE.

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