

**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. Wood doors: Section 08 14 00, WOOD DOOR.
- B. Door Hardware: Section 08 71 00, DOOR HARDWARE.

**1.3 TESTING**

- A. 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.
- B. Manufacturers Literature and Data:
  - 1. Fire rated doors and frames, showing conformance with NFPA 80 and Underwriters Laboratory, Inc., or Intertek Testing Services or Factory Mutual fire rating requirements.
  - 2. Sound rated doors, including test report from Testing Laboratory.
- C. Unified Schedule: Submit a schedule containing doors, frames and hardware conforming to DHI "Sequences and Format for the Hardware Schedule" (A115 Series).

**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. Door and Hardware Institute (DHI):

A115 Series.....Steel Door and Frame Preparation for Hardware, Series A115.1 through A115.17 (Dates Vary)

## C. Steel Door Institute (SDI):

122 .....Installation and Troubleshooting Guide for Steel Doors and  
Frames

A250.8-98 .....Standard Steel Doors and Frames

A250.11 .....Recommended Installation Instructions for Steel Frames

D. American Society for Testing and Materials (ASTM):  
and Cold-Rolled

A 653/A 653M-06a.....Standard Specification for Steel Sheet, Zinc-Coated  
(Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the  
Hot-Dip Process.

A1008-04 .....Steel, sheet, Cold-Rolled, Carbon, Structural, High Strength  
Low Alloy and High Strength Low Alloy with Improved  
Formability

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

E. The National Association Architectural Metal Manufacturers (NAAMM):  
Metal Finishes Manual (1988 Edition)

## F. National Fire Protection Association (NFPA):

80-10 .....Fire Doors and Fire Windows

## G. Underwriters Laboratories, Inc. (UL):

Fire Resistance Directory

## H. Intertek Testing Services (ITS):

Certifications Listings...Latest Edition

## I. Factory Mutual System (FM):

Approval Guide

**PART 2 - PRODUCTS****2.1 MATERIALS**

A. Sheet Steel: ASTM A1008, cold-rolled for panels (face sheets) of doors.

B. Galvanizing (All Exterior Doors and Frames): All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M to minimum A60 or G60.

- C. Anchors, Fastenings and Accessories: Fastenings anchors, clips connecting members and sleeves from zinc coated steel.
- D. Prime Paint: Paint that meets or exceeds the requirements of A250.8.

## 2.2 DOORS

- A. General:
  - 1. Follow SDI A250.8 for fabrication of standard steel doors, except as specified otherwise. Doors to receive hardware specified in Section 08 71 00, Door Hardware. Tolerances as per SDI A250.8. Thickness, 44 mm (1-3/4 inches), unless otherwise shown.
  - 2. When vertical steel stiffeners are used for core construction, fill spaces between stiffeners with mineral fiber insulation.
  - 3. Close top and vertical edges flush.
  - 4. Provide seamless vertical edges.
- B. Interior Doors: Heavy Duty Doors: SDI A250.8, Level 2, Model 2 of size and design shown. Core construction types a, d, or f, for interior doors.
  - 1. Use for office doors and light storage areas.
- C. Interior Extra Wide Doors: Extra Heavy Duty Doors: SDI A250.8, Level 3, Model 2 of size and design shown. Core construction Types d or f, for interior doors.
  - 1. Use for doors over 1 m (3'-6") wide.
- D. Exterior Doors: Extra Heavy Duty Doors: SDI A250.8, Level 3, Model 2 of size and design shown. Core construction types b, c, e, or f, for exterior doors. Galvanized.
- E. Exterior Doors Thermal Performance: Not less than R=3.0
- F. Reinforcement for Hardware: SDI A250.8.

## 2.3 METAL FRAMES

- A. General:
  - 1. Interior Doors: SDI A250.8, 1.3 mm (0.053 inch) thick sheet steel, types and styles as shown or scheduled.
  - 2. Interior Extra Wide Doors: Frames for doors over 1 m (3'-6") wide: Fabricate from 1.7 mm (0.067 inch) thick sheet steel.
  - 3. Exterior Doors: SDI A250.8, 1.7 mm (0.067 inch) thick sheet steel, types and styles as shown or scheduled. Galvanized
  - 4. 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. 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.
  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, except for fire rated frames space anchors as required by labeling authority.
    - b. Form jamb anchors of not less than 1 mm (0.042 inch) thick steel unless otherwise specified.
    - c. 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.
    - d. Anchors for frames set in prepared openings:
      - 1) Steel pipe spacers with 6 mm (1/4 inch) inside diameter welded to plate reinforcing at jamb stops or hat shaped formed strap spacers, 50 mm (2 inches) wide, welded to jamb near stop.
      - 2) Drill jamb stop and strap spacers for 6 mm (1/4 inch) flat head bolts to pass thru frame and spacers.
    - e. Modify frame anchors to fit special frame and wall construction and provide special anchors where shown or required.

## **2.4 SHOP PAINTING**

- A. SDI A250.8.
- B. Coat frame back with a bituminous coating.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION OF FRAMES**

- 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.
2. Power actuated drive pins may be used to secure frame anchors to concrete floors.

**C. Jamb Anchors:**

1. Secure anchors to sides of studs with two fasteners through anchor tabs. Use steel drill screws to steel studs.
2. Frames set in prepared openings of masonry or concrete: Expansion bolt to wall with 6 mm (1/4 inch) expansion bolts through spacers. Where subframes or rough bucks are used, 6 mm (1/4 inch) expansion bolts on 600 mm (24 inch) centers or power activated drive pins 600 mm (24 inches) on centers.

D. Install anchors for labeled fire rated doors to provide rating as required.

E. Grout all frames in non-masonry walls with setting type gypsum joint compound or plaster.

### **3.2 INSTALLATION OF DOORS AND APPLICATION OF HARDWARE**

- A. Install doors and frames in accordance with the requirements of the door and frame manufacturer and in accordance with ANSI 250.11, SDI 122 and DHI A115.IG.
- B. In addition, install fire rated units in accordance with NFPA 80.

### **3.3 CORRECTION AND TOUCH UP**

- A. Any damage to doors and frames may be corrected only if correction is approved by the Resident Engineer. Otherwise replace damaged door or frame
- B. Touch up damaged galvanization with zinc-rich primer.
- C. Touch up primer wherever primer is damage or missing after installation.

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