

SECTION 08110

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section describes the requirements for furnishing and installing hollow metal doors, door frames, interior window frames, and associated accessories.
- B. Related Sections:
 - 1. Door hardware is specified in Section 08710.
 - 2. Glass and glazing is specified in Section 08800.
 - 3. Field-applied finishes are specified in Section 09900.

1.02 SUBMITTALS

- A. Product Data: Furnish for each type of door and frame, including details of construction, materials, dimensions, hardware preparation, core, label compliance, profiles, and finishes.
- B. Shop Drawings: Include details of each frame type, elevations of door types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items. Reference architectural details, door number and hardware group.
- C. Door Schedule: Furnish complete schedule of doors and frames using same reference numbers for details and openings as those on the drawings.

1.03 QUALITY ASSURANCE

- A. Steel doors and frames shall comply with ANSI A250.8 "Recommended Specifications Standard Steel Doors and Frames" and the specified requirements.
- B. Fire-Rated Door Assemblies: Units shall comply with **CBC**, and be identical to door and frame assemblies whose fire resistance characteristics have been determined in accordance with UBC Standard 7-2 and are labeled and listed by UL, Factory Mutual, Warnock Hersey, or other testing and inspecting organization acceptable to authorities having jurisdiction.
- C. Steel doors and frames shall comply with positive pressure test requirements of UBC Standard 7-2 and shall be labeled accordingly by the door and frame manufacturer in a manner approved by authorities having jurisdiction.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage.
- B. Inspect doors and frames upon delivery for damage. Minor damage may be repaired provided finish items are equal to new work and acceptable to Architect; otherwise remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inch high wood blocking. Avoid use of non-vented plastic or canvas shelters that could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4-inch space between stacked doors to promote air circulation.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Ceco Door Products, Curries Company, Stiles, Steelcraft or approved equal.

2.02 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A569.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A366, commercial quality or ASTM A620, drawing quality.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel complying with ASTM A526, commercial quality, or ASTM A642, drawing quality, hot dipped galvanized in accordance with ASTM A653, A60 or G90 coating designation, mill phosphatized.
- D. Supports and Anchors: Fabricate of not less than 16-gauge, galvanized where used with galvanized frames.
- E. Inserts, Bolts and Fasteners: Manufacturer's standard units. Where items are built into exterior walls, hot-dip galvanize in accordance with ASTM A153, Class C or D as applicable.
- F. Shop Applied Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

2.03 DOORS

- A. Provide metal doors of ANSI A250.8 grades and models specified.
 - 1. Interior Flush Doors: Level 2, heavy duty, Model 2, minimum 16-gauge cold-rolled sheet steel faces.
 - 2. Exterior Flush Doors: Level 3, extra heavy duty, Model 2, minimum 16-gauge galvanized steel faces.
- B. Door Louvers: Sightproof stationary louvers, constructed of inverted V-shaped or Y-shaped blades formed of 24-gauge cold-rolled steel set into minimum 20-gauge steel frame. Provide galvanized louvers and frames in exterior doors.
- C. Internal Construction: Unitized steel grid or vertical steel stiffeners with internal sound deadener on inside of face sheets, in accordance with ANSI A250.8 requirements. Exterior doors shall have a polyurethane or polystyrene core.
- D. Clearance: Not more than 1/8-inch at jambs and heads. Not more than 3/8-inch at bottom. Threshold clearances as indicated.
 - 1. Fire Doors: Provide clearances according to their listing (CBC Sec. 713.4) except where more stringent requirements are specified.
- E. Edges:
 - 1. General: Beveled latch stile for single doors, and meeting stile for pair doors; square elsewhere.
 - 2. Stile Edges: No seams are allowed on vertical stile edges.
 - 3. Top and Bottom Edges: Reinforced with 16-gauge steel channels; both edges flush and made watertight for exterior doors, top edge flush for interior doors.
- F. Glazing: Provide minimum 20-gauge steel non-removable glazing stops on the outside of exterior doors and on the secure side of interior doors. Glazing beads on the inside of glass panels shall be removable.

2.04 DOOR FRAMES

- A. One-Piece Welded Frames: 16-gauge. Fabricate frames with mitered or coped and continuously welded corners. Where scheduled, provide stainless steel frames.
- B. Glazing Beads: Provide frame glazing beads in interior glazed openings and other locations where fixed glass is indicated. Prepare frames for the type of glazing beads required to receive the glass and gaskets indicated. Miter or butt join beads at corners. Glazing beads shall be screw-on type to receive countersunk flat head machine screws.

- C. Anchors:
 - 1. Provide a jamb anchor for each 2'-6" of door or window height or fraction thereof.
 - 2. Fabricate from minimum 16-gauge sheet steel.
 - 3. Vary anchor types to provide positive fastening to adjacent construction.
 - 4. Secure a metal clip angle at bottom of each jamb member for anchoring to floor, with a minimum of two fasteners.
 - 5. Items to be built into exterior walls shall be hot-dip galvanized after fabrication in accordance with ASTM A153, Class B.
- D. Door Silencers: Except on weatherstripped or smoke gasketed frames, drill stops to receive 3-silencers on strike jambs of single-swing frames and 2-silencers in heads of double-swing frames.
- E. Plaster Guards: Provide 26-gauge steel plaster guards or mortar boxes at back of hardware cutouts.

2.05 FABRICATION

- A. Fabricate steel doors and frames to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at Project site. Comply with ANSI A250.8 requirements.
- B. Fabricate exposed faces of doors, including stiles and rails of non-flush units, from cold-rolled steel.
- C. Tolerances: Comply with SDI-117, "Manufacturing Tolerances Standard Steel Doors and Frames" unless otherwise indicated or specified.
- D. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel.
- E. Fabricate exterior doors and frames from galvanized sheet steel in accordance with SDI-112. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gauge inverted steel channels with channel webs placed even with top and bottom edges. Seal joints in top edges of doors against water penetration.
- F. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat heads for exposed screws and bolts.
- G. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware in accordance with final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A250.6 for door frame preparation for hardware.
 - 1. For concealed overhead door closers, provide space, cutouts, reinforcing and provisions for fastening in top rail of doors or head of frames, as applicable.
- H. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping of surface-applied hardware may be done at Project site.
- I. Locate hardware as indicated on final shop drawings and in accordance with Door Hardware Institute (DHI) "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames".
- J. Shop Painting: Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces.
 - 1. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
 - 2. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive paint finish.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install steel doors, frames, and accessories in accordance with the manufacturer's instructions, the requirements of ANSI/SDI, and final reviewed Shop Drawings.
- B. Placing Frames: Comply with provisions of ANSI A250.8 and SDI-112 unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1. Except for frames located in concrete, place frames before constructing enclosing walls or ceilings.
 - 2. In masonry construction, install at least 3 wall anchors per jamb adjacent to hinge location on hing jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
 - 3. At existing concrete or masonry construction, install at least 3 completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
 - 4. In stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. Attach wall anchors to studs with screws.
 - 5. Install fire-rated frames according to their listings.
 - 6. Install head anchors at mid span for openings exceeding 48-inches.
- C. Door Installation: Fit hollow metal doors accurately in frames, within specified clearances.
 - 1. Fire-Rated Doors: Install with clearances specified in their listings and as specified

3.02 ADJUST AND CLEAN

- A. Immediately after installation, sand smooth rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
 - 1. Remove rust before touch-up is applied.
 - 2. Touch-up shall not be obvious.
- B. Repair damaged galvanizing with a galvanizing repair paint.
- C. When complete, exposed surfaces and edges shall be clean, straight, and free from dents, scratches, and other damage and defects.
- D. Doors and finish hardware shall operate smoothly, quietly, and free from bind.

END OF SECTION