

# SECTION 08110 - STEEL DOORS AND FRAMES

## City of San Diego, CWP Guidelines

### PART 1 -- GENERAL

#### 1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing steel doors, frames, hardware and appurtenances.

#### 1.2 RELATED SECTIONS

- A, The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

1. Section 08710 Finish Hardware
2. Section 08800 Glazing
3. Section 09800 Protective Coating
4. Section 09900 Architectural Paint Finishes

#### 1.3 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:

1. Uniform Building Code

#### 1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

1. ASTM A 366 Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality
2. ASTM B 117 Method of Salt Spray (Fog) Testing
3. ASTM D 1735 Method for Water Fog Testing of Organic Coatings
4. ASTM E 90 Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions
5. ANSI A115 Series Door and Frame Preparation
6. UL Standards Underwriters' Laboratories, Inc.

#### 1.5 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:

1. Manufacturer's product data including catalogue cuts.
2. Manufacturer's maintenance procedures.
3. Manufacturer's installation instructions.

4. Certification that products comply with the specifications indicated.
5. Door schedules showing sizes, types, louvers, and glass.
6. Certified Sound Transmission Coefficients.
7. Shop drawings showing frame jamb depths, trim profile, stops, and backbends.

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Doors and frames shall be shipped and stored with temporary stiffeners and spacers in place to prevent distortion.
- B. Doors and frames shall be delivered in original, unbroken packages, containers, or bundles bearing the name of the manufacturer.

## PART 2 -- PRODUCTS

### 2.1 GENERAL

- A. **General:** Only products certified as complying with the indicated requirements shall be provided.
- B. **Products:** Products shall be new, of current manufacture, and shall be the products of reputable manufacturers specializing in the manufacture of such products.
- C. **Manufacturer's Recommendation:** Products shall be recommended by the manufacturer for the application indicated.

### 2.2 MATERIALS AND FABRICATION

- A. **Factory Fabrication:** Steel doors and frames shall be factory fabricated and assembled. Temporary stiffeners, spacers, and other accessories necessary to facilitate handling and erection shall be included. After fabrication, tool marks and other surface imperfections shall be filled and ground smooth.
- B. **Fire Rating and Labelling:** Fire-rated doors and frames shall bear a UL label indicating the type of rating. Design and construction of fabricated products shall have UL approval for the fire rating indicated. Hollow steel doors and frames for fire-rated openings shall conform to Underwriters' Laboratories listing and shall be UL labeled.
- C. **Materials for Doors and Frames:** Exterior doors and frames shall be fabricated of galvanized steel. Other doors and frames shall be fabricated from commercial grade, cold-rolled steel conforming to ASTM A 366, Type II or III.
- D. **Priming and Painting:** Doors and frames shall be chemically treated to ensure maximum paint adhesion and exposed surfaces shall be painted with a rust-inhibitive primer after fabrication. Prime coat shall be capable of passing a 120-hour salt spray test in accordance with ASTM B 117 and a 250-hour humidity test in accordance with ASTM D 1735.
- E. **Hardware:** Doors and frames shall be reinforced and drilled or tapped for templated mortised hardware and shall be reinforced with plates for surface-mounted hardware complying with ANSI A115 Series requirements. Hardware shall comply with Section 08710.

### 2.3 METAL FRAMES

- A. **Pressed Metal Frames:** Pressed steel frames for doors, [windows,] and other openings shall be combination buckled frame and trim of type and sizes indicated. Metal shall not be lighter than 16-gauge steel. Frames shall be of the welded unit type. Special frames, oversized frames, and frames with transom shall be provided where indicated.
- B. **Frame Jamb Depths, Trim Profile, Stops, and Backbends:** Frame jamb depths, trim profile, stops, and backbends shall be as shown on the shop drawings.
- [C. **Windows:** Window frames shall include anchors and metal stops for glazing. Stops shall be miter-cut and dipped for countersunk flathead fasteners.]

#### 2.4 FRAME ANCHORS

- A. **Floor Anchors:** Floor anchors shall be welded inside each frame jamb head, and holes shall be provided for floor anchorage. Minimum thickness of floor anchors shall be 14-gauge.
- B. **Anchors for Masonry/Concrete Installations:** Frames for installation in masonry and concrete walls shall include adjustable jamb anchors of the T-strap, stirrups and strap, or wire type. The number of anchors provided for each frame jamb and head shall comply with the applicable standard and the following:
  - 1. Frames up to 7 feet 6 inches in height: 3 anchors.
  - 2. Frames over 7 feet 6 inches to 8 feet 0 inches in height: 4 anchors.
  - 3. Frames over 8 feet 0 inches in height: One anchor for each 2 feet or fraction in height.
- C. **Anchors for Stud Wall Installation:** Frames for installation in stud partitions shall include steel anchors of suitable design, and shall be not less than 18-gauge thickness securely welded inside each jamb and head. The number of anchors provided for each frame jamb shall comply with the applicable standard and the following:
  - 1. Frames up to 7 feet 6 inches in height: 3 anchors.
  - 2. Frames over 7 feet 6 inches to 8 feet 0 inches in height: 5 anchors.
  - 3. Frames over 8 feet 0 inches in height: 5 anchors plus one additional for each 2 feet 0 inches or fraction over 8 feet 0 inches.
- D. **Anchors to Existing Construction:** Frames to be anchored to existing concrete, masonry, or structural steel shall include anchors of proper design.

#### 2.5 DUST COVER BOXES AND MORTAR GUARDS

- A. Dust cover boxes or mortar guards of not less than 24-gauge steel shall be provided at all hardware mortises on frames to be set in masonry, concrete, or plaster walls.

#### 2.6 SILENCER HOLES

- A. Appropriate holes for silencers shall be provided in the door frames which are not designated to receive weatherstripping, seals, or sound seals.

#### 2.7 STEEL DOORS

- A. **Design and Construction:** Steel doors shall be of hollow metal construction and shall be of full flush design with no visible seams. Face sheets shall be not less than cold-rolled, stretcher-levelled, 18-gauge steel. Doors shall have flush seamless face sheets with continuously and fully welded seam edges. Doors shall be rigid and neat in appearance, and shall be free from warpage or buckle. Corner bends shall be true and straight and shall be of not less than the minimum radius for the gauge of metal used. The door top and bottom shall be internally reinforced by steel members welded in place. Tops of exterior doors shall be provided with flush, water and weather tight, top enclosures.
- B. **Transom Panels:** Transom panels shall be provided where indicated and shall comply with the requirements for doors.
- C. **Door and Transom Cores:** Doors and transom cores shall be water-resistant [honeycomb] [[polystyrene] [fiber glass or mineral] with minimum R of [ ] ] [urethane with minimum R of [ ] [fiberboard] [mineral]. Fire rated doors shall be solid or fiber mineral core doors and shall comply with code requirements.
- D. **Monorail Doors:** Monorail doors shall comply with the requirements for steel doors and shall be notched for the monorail and include a T-type astragal. Doors shall include reinforcement for hardware and anchors and anchor sizing. Neoprene weatherstripping flaps shall be provided at the monorail penetration.
- E. **Louvers:** Door louvers for steel doors shall be of [steel] [extruded aluminum] of the type which integrally frames the opening and can be securely attached. Louvers shall be of the inverted "Y" blade type for exterior use and "V" blade for interior use. Exterior louvered openings shall be provided with removable type insect screens. Door louvers shall be uniformly located in doors and shall be of sizes indicated. [Louvers at labeled doors shall be equipped with concealed fusible links.] [Extruded aluminum louvers shall be provided and be [dark bronze] [clear] anodized.]
- F. **Glazed Openings:** Glazed openings in doors shall be of sizes indicated, and shall include mitered metal stops. Glazed openings in fire-rated doors shall meet UL requirements. [Glass shall conform to Section 08800.] [Glass shall be 1/4-inch clear, [tempered plate] [wire] glass.]
- G. **Double Doors:** Double doors shall be provided with a "T" type steel astragal unless otherwise indicated in Section 08710.

## 2.8 SOUND DOORS AND FRAMES

- A. **Door and Frame Assemblies:** Sound doors and frames shall be factory-fabricated with perimeter compression seals and automatic, door-bottom seals at sill.
- B. **STC Rating:** Sound door assemblies shall have a minimum STC rating of [40] [47] dB, complying with ASTM E 90 as determined by a qualified acoustical products testing laboratory.
- C. **Door Construction:** Doors shall be formed of 16-gauge steel face sheets jointed by welding along the vertical edges. Door tops and bottoms shall be reinforced and completely closed with die-formed, 16-gauge steel channels welded in place. The core shall be incombustible, noncoupling filler. An astragal shall be provided at pairs of doors. Exterior doors shall include flush, water and weathertight, top enclosures.
- D. **Frame Construction:** Frames shall be fabricated from 14-gauge steel with the corners mitered, welded, and ground smooth. Strike, hinge, and other hardware reinforcement shall be of not less than 3/16-inch thick steel. The frame shall include welded floor anchors at each jamb with a minimum of 3 wall anchors per jamb.

- E. **Perimeter Seals:** Perimeter seals shall be made of sturdy vinyl with a magnetic tape insert. The hinge side shall be constructed so as to avoid pinching or other distortion of the seal from opening and closing of the door.
- F. **Automatic Door Bottoms:** Automatic door bottoms shall close the entire gap between the door and the floor. The seal shall be 50-60 durometer neoprene, and the actuating mechanism shall compress or retract the seal properly when the outer face of the door is within 2 inches of the strike jamb.
- G. **Half Lite:** Sound doors with half-lite shall be double-glazed with 2 panes of [1/4-inch clear, tempered float] [wire] glass unless otherwise indicated.
- H. **Cleaning and Priming:** Doors, frames, and seal retainers shall be thoroughly cleaned, phosphatized, and factory primed with rust-inhibitive primer. The primer shall be compatible with the finish coatings complying with Sections 09800 and 09900.

## 2.9 MANUFACTURERS

- A. Products shall be manufactured by one of the following (or equal):

- 1. Steel doors:

- Krieger Steel Products Co.
  - Overly Manufacturing Co.
  - Trussbuilt, Inc.

- 2. Sound doors and frames:

- Krieger Steel Products Co.
  - Overly Manufacturing Co.
  - Sonicbar by Rysdon Products Co.

## PART 3 -- EXECUTION

### 3.1 GENERAL

- A. **General:** Products shall be installed in accordance with the manufacturer's installation instructions.

### 3.2 FRAME INSTALLATION

- A. Frames shall be set plumb and square in a true plane, and shall be securely anchored to the adjoining construction. Steel shims shall be provided and shall be tight and rigidly attached between frame anchors and structure. Finished metal frames shall be strong and rigid, neat in appearance, and square, true, and free of defects, warpage, or buckling.
- B. Molded members, trims, and stops, shall be clean cut, straight, and shall be of a uniform profile throughout their lengths.
- C. Corner joints shall have all contact edges tightly closed with all trim faces mitered, welded, and finished smooth. The use of gussets shall not be permitted.

### 3.3 DOOR INSTALLATION

- A. Doors shall be installed plumb, square, and level. Doors shall operate freely, but not loosely. They shall be free from rattling while in a closed position.
- B. The door clearances shall be plus 3/32-inch or minus 1/32-inch and shall not exceed the limits recommended by the manufacturer.
- C. Doors shall not be installed with an out-of-plane warpage of more than 3/16-inch.
- D. Doors and finish hardware shall [be removed and rehung] [have hardware protected] prior to painting.

### 3.4 FINISH HARDWARE

- A. Finish hardware shall be installed in accordance with hardware manufacturer's standard templates. Operable parts shall be adjusted for proper function and operation.

### 3.5 EXISTING CONSTRUCTION

- A. Frames that are dimpled for fasteners required for installation into existing concrete, masonry, or steel structures shall have the fasteners and fastener frame dimples filled with auto putty or an equal filler material. The fasteners and fillers at dimple holes shall be ground smooth (non-visible) before painting. Fastener locations shall not be visible after the painting work is finished.

\*\* END OF SECTION \*\*