

DIVISION 8 – DOORS AND WINDOWS

SECTION 08110 – STEEL DOORS AND FRAMES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions of the contract, including the General Provisions for Construction Projects (2016), Special Provisions, and General Requirements of the Specifications, apply to the work specified in this Section.

1.02 REFERENCES

A. The latest publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

B. American National Standards Institute, Inc. (ANSI)

ANSI A250.6 - Hardware on Standard Steel Doors (Reinforcement- Application)

ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and frames.

C. ASTM International (ASTM)

ASTM A 653- Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

ASTM A 780 - Repair of Damaged Hot-Dip Galvanized Coating, Standard Practice for

ASTM A 924 - General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

ASTM C 578- Preformed, Cellular Polystyrene Thermal Insulation

ASTM C 591 - Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation

ASTM C 612 - Mineral Fiber Block and Board Thermal Insulation

ASTM D 1187 -Asphalt-Base Emulsions for Use as Protective Coating For Metals

ASTM D 2863 - Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)

ASTM E 90 – Laboratory Measurement of Airborne Sound Transmission Loss of Building Materials

C. National Fire Protection Association (NFPA)

NFPA 80- Fire Doors and Windows

NFPA 252 -Fire Tests of Door Assemblies

D. Underwriters Laboratories (UL)

UL 10B - Fire Tests of Door Assemblies

UL BMD - Building Materials Directory

1.03 SUBMITTALS

A. Submit in accordance with SECTION 01300 - SUBMITTALS.

B. Shop Drawings: Show elevations, construction details, metal gages, hardware provisions, method of glazing, and installation details. Include a schedule showing door and frame locations. Submit shop drawings for the following:

1. Doors
2. Frames
3. Weatherstripping

C. Manufacturer's Catalog Data: Manufacturer's descriptive literature for doors, frames and accessories. Include data and details on door construction, panel (internal) reinforcement, insulation, and door edge construction. Submit manufacturer's catalog data for the following:

1. Doors
2. Frames
3. Weatherstripping

1.04 DELIVERY AND STORAGE:

A. Deliver doors, frames, and accessories undamaged and with protective wrappings or packaging. Strap welded frames in pairs, with one frame inverted, or provide temporary steel spreaders securely fastened to the bottom of each frame. Store doors and frames on platforms under cover in clean, dry, ventilated, and accessible locations,

with 1/4-inch air space between doors. Remove damp or wet packaging immediately and wipe all affected surfaces dry. Replace damaged materials with new.

PART 2 – PRODUCTS

2.01 STEEL DOORS

- A. ANSI A250.8, except as specified otherwise. Doors shall be either hollow steel construction or composite construction. Prepare doors to receive hardware specified in Finish Hardware section. Exterior doors shall have top edge closed flush and sealed to prevent water intrusion. Doors shall be 1 3/4 inches thick, unless otherwise indicated.
- B. Heavy Duty Doors: ANSI A250.8, Level 3, physical performance Level A, Model 1 or 2, with core construction Type a, d or f for interior doors, and Type b, c, e or f for exterior doors, of sizes and designs indicated. Where Type f cores are specified or scheduled, the space between the stiffeners shall be filled with mineral-fiber insulation as specified in paragraph "INSULATION CORES."

2.02 INSULATION CORES

- A. Insulated cores shall be type specified, shall provide maximum assembly U-value of 0.48 in accordance with SDI 113 and shall conform to:
- B. Rigid Polyurethane Foam: ASTM C 591, Type 1 or 2, foamed-in-place or in board form, with an oxygen index of not less than 22 percent when tested in accordance with ASTM D 2863; or
- C. Rigid Polystyrene Foam Board: ASTM C 578, Type I or II; or
- D. Mineral Board: ASTM C 612, Type I.

2.03 STEEL FRAMES

- A. ANSI A250.8, except as otherwise specified. Form frames to sizes and shapes indicated, with welded corners.
- B. Welded Frames: Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.
- C. Anchors: Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated or painted with rust-inhibitive paint, not lighter than 18 gage.
 - 1. Wall Anchors: Provide a minimum of three anchors for each jamb. Locate anchors opposite top and bottom hinges and midway between.

2. Floor Anchors: Provide floor anchors drilled for 3/8-inch anchor bolts at bottom of each jamb member.
- D. Coat interior surfaces of door frames with asphalt base coating conforming to ASTM D 1187, 18 mils dry film thickness. Solid grout all door frames.

2.04 HARDWARE PREPARATION

- A. Reinforce, drill, and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of ANSI A250.8 and ANSI A250.6. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Locate hardware in accordance with the requirements of ANSI A250.8, as applicable. Punch door frames to receive a minimum of two rubber or vinyl door silencers on lock side of single doors and one silencer for each leaf in heads of double doors. Set lock strikes out to provide clearance for silencers.

2.06 ASTRAGALS

- A. Astragals: For pairs of exterior steel doors, provide astragals as specified in SECTION 08710-FINISH HARDWARE.

2.07 FINISHES

- A. Hot-Dip Zinc-Coated and Factory-Primed Finish: Fabricate doors and frames from hot dipped zinc coated steel, alloy type, that complies with ASTM A 924 and ASTM A 653. The coating weight shall meet or exceed the minimum requirements for coating having Designation G90 or A90 (galvannealed). Repair damaged zinc-coated surfaces by the application of zinc dust paint conforming to ASTM A 780, Annex A2. Thoroughly clean and chemically treat to ensure maximum paint adhesion. Factory prime as specified in ANSI A250.8.

2.08 FABRICATION AND WORKMANSHIP

- A. Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle.
Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Frames: Set frames in accordance with SDI 105. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Solid grout frames. Build in or secure wall anchors to adjoining construction.

B. Doors: Hang doors in accordance with clearances specified in ANSI A250.8. After erection, clean and dust hardware.

3.02 PROTECTION: Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until all rust is removed, clean thoroughly, and apply an all-over coat of rust-inhibitive paint of the same type used for shop coat.

3.03 CLEANING: Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks. Touch-up finishes to restore damaged or soiled areas.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

A. Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the price bid for the various items of work in this project.

END OF SECTION