

Part 1: GENERAL

1.01 SUMMARY

This section includes steel doors, steel frames, and steel frame components for stick assemblies as manufactured by Republic Builders Products, McKenzie, Tennessee, and conforming to ANSI A250.8, "SDI 100 Recommended Specifications for Standard Steel Doors and Frames".

1.02 RELATED WORK

- A. Work not included: Installation of doors, frames, glass and glazing, field painting, door and frame hardware.
- B. The following sections may contain information pertaining to Standard Steel Doors and Frames:
 - 1. Division 1 – All Sections – General Requirements
 - 2. Section 08114 – Custom Steel Doors and Frames
 - 3. Section 09210 – Wood Doors
 - 4. Section 08710 – Door Hardware
 - 5. Section 08800 – Glazing
 - 6. Section 09900 – Painting

1.03 REFERENCES

- A. ANSI A250.8 – SDI 100 Recommended Specifications for Standard Steel Doors and Frames.
- B. ANSI A250.10 – Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- C. ANSI A250.3 – Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
- D. ANSI A250.11 – Recommended Erection Instructions for Steel Frames.
- E. ANSI A115.IG – Installation Guide for Doors and Hardware.
- F. ASTM E-90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- G. ASTM A1008 – Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High Strength Low-Alloy and High Strength with Improved Formability.
- H. ASTM A568 – Standard Specification for Steel, Sheet, Carbon, and High Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements.

- I. ASTM A1011 – Standard Specification for Steel, Sheet and Strip, Hot Rolled, Carbon, Structural, High Strength Low-Alloy and High Strength Low-Alloy with Improved Formability.
- J. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- K. UL 10B – Fire Tests of Door Assemblies.
- L. UL 10C – Positive Pressure Fire Tests of Door Assemblies.
- M. NFPA 252 – Fire Tests of Door Assemblies.
- N. DHI – Installation Guide for Doors and Hardware.
- O. NFPA 80 – Standard for Fire Doors and Fire Windows.

1.04 QUALITY ASSURANCE

- A. All products shall conform to the requirements of ANSI A250.8, "SDI 100 Recommended Specifications for Standard Steel Doors and Frames".
- B. Acoustical Doors shall have a minimum Sound Transmission Classification (STC) Rating of 38 and be tested in accordance with ASTM E-90-87, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements".
- C. Insulated Doors shall have:
 - 1. A "U Factor" of 0.10 for a Polyurethane core.
 - 2. A "U Factor" of 0.13 for a Polystyrene core.
- D. Fire Rated Doors:
 - 1. Doors shall be tested in accordance with UL 10B, "Fire Tests of Door Assemblies", NFPA 252, "Fire Tests of Door Assemblies", and UL 10C, "Positive Pressure Fire Tests of Door Assemblies".
 - 2. Doors must have an approved marking or physical label, applied by an authorized facility, in accordance with the procedure set forth by an independent certification agency.
- E. Stairwell Doors shall have a 250° F. temperature rise rating, and the label on the door shall indicate the specific hourly fire rating.

1.05 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01300.
- B. Submit manufacturer's installation instructions.
- C. Submit Technical Data information relating to products used on the project.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Doors and frames shall be delivered palletized and wrapped to provide protection while in transit.
- B. All material shall be stored under cover. The use of non-vented plastic, or canvas shelters shall be avoided to prevent forming of humidity chambers, thus causing rust. In the event that the cardboard wrapping on the doors become wet, the cartons shall be removed immediately. A 1/4" spacing shall be provided between the doors to provide proper air circulation.

Part 2: PRODUCTS

2.01 MATERIALS

- A. Cold Rolled Steel: Commercial Steel in accordance with ASTM A1008, "Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High Strength Low-Alloy and High Strength with Improved Formability", ASTM A568, "Standard Specification for Steel, Sheet, Carbon, and High Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements", and ASTM A1011, "Standard Specification for Steel, Sheet and Strip, Hot Rolled, Carbon, Structural, High Strength Low-Alloy and High Strength Low-Alloy with Improved Formability".
- B. Galvannealed Steel: Commercial quality, hot dipped, A-40 galvannealed steel in accordance with ASTM A653, "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process". A-60 galvannealed steel, and G-90 galvanized steel shall be supplied when specified.

2.02 DOOR CONSTRUCTION

- A. Doors shall be full flush (No Vertical Face Seams), fabricated from 20 gage or 18 gage for 1-3/8" thick doors, or 20, 18, 16 or 14 gage for 1-3/4" thick doors.
- B. Doors shall be reinforced by laminating panels to a 3/4" cell honeycomb core or other specified core [polystyrene] [polyurethane] [vertical steel stiffeners], and the complete unit closed with steel perimeter channels, projection welded to the face sheets. Door edges shall be non-beveled with full height visible edge seams. [When specified, doors shall be furnished without vertical edge seams.
- C. When beveled doors are specified, the lock edge of the door shall be beveled 1/8" in 2".
- D. Top and bottom channels shall be 16 gage steel, projection welded to both face sheets at a maximum of 2-1/2" on center.
- E. The hinge reinforcing channel shall be a continuous 16 gage channel with 10 gage reinforcements located at each hinge preparation, or an 11 gage channel for 1-3/4" thick doors. For 1-3/8" thick doors the hinge reinforcement shall be a continuous 16 gage channel with 10 gage reinforcements located at each hinge preparation. The hinge reinforcing channel shall be projection welded to both face sheets at a maximum of 5" on center.

- F. The lock reinforcing channel shall be a continuous 16 gage channel, with tapped holes extruded to 14 gage. The lock reinforcing channel shall be welded to both face sheets at a maximum of 5" on center.
- G. The closer reinforcement shall be a 12 gage box type reinforcement that is 18" long.
- H. When specified, the top channel shall be filled with epoxy and ground smooth.
- I. Embossed doors shall be manufactured the same as flush doors with 20 or 18 gage face sheets. The face sheets shall be embossed with a six-panel design and laminated to a polystyrene core.
- J. Steel stiffened doors shall be reinforced with 22 gage min. hat shaped stiffeners, welded to the inside of each face sheet at a maximum of 6" on center. Mineral wool shall be used to fill the spaces between the stiffeners.
- K. Temperature rise doors shall be designed to provide a 250° F. temperature rise rating.

2.03 FRAME CONSTRUCTION

- A. Frames shall be formed from 18, 16, 14, or 12 gage cold rolled, galvanized, or galvanized materials as shown in Section 2.01.
- B. Frames shall have 2" face jambs and headers unless otherwise specified.
- C. Frames shall have mitered corners, and shall be of knockdown or welded construction. When welded frames are specified, they shall be provided with face welding only and ground smooth.
- D. Frames intended to receive 1-3/4" thick doors shall have 9 gage hinge reinforcements and an equivalent 10 gage strike reinforcement. Frames intended to receive 1-3/8" thick doors shall have 11 gage hinge reinforcements and 14 gage strike reinforcements.
- E. Closer reinforcements for all frames shall be 12 gage.
- F. All frames shall be anchored with a minimum of six wall anchors and two base anchors.

2.04 STICK ASSEMBLIES

- A. Architectural stick assemblies shall be made using standard profile frame material. All components shall be formed from 16, 14, and 12 gage steel. All pieces shall be cut to the proper length and notched or mitered to coordinate with adjoining frame members thus forming square corners. All stick pieces shall be reinforced and/or prepped to receive the required hardware. Pre-punched glazing bead, when required, shall be cut to the proper length and shipped loose for field installation.
- B. Hollow metal panels shall be fabricated using 20, 18, or 16 gage steel.

2.05 FINISH

- A. All doors, frames, and stick components shall be cleaned, phosphatized, and finished as standard. One coat of a gray, alkyd acrylic enamel primer shall be applied and forced cured. Components must be capable of meeting the acceptance criteria as specified in

ANSI A250.10, "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames".

- B. Finish painted products shall be painted using a two-coat process, with each coat being force cured after each coating. The finish coat shall be alkyd acrylic enamel applied over the gray, alkyd acrylic enamel primer shall be applied and forced cured. Finish painted components must be capable of meeting the acceptance criteria as specified in ANSI A250.3, "Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames".

Part 3: EXECUTION

3.01 INSTALLATION

- A. All frames shall be installed plumb, level, rigid and in true alignment as recommended in ANSI A250.11, "Recommended Erection Instructions for Steel Frames" and ANSI A115.IG, "Installation Guide for Doors and Hardware". All frames other than slip-on types shall be fastened to the adjacent structure so as to retain their position and stability. Drywall slip-on frames shall be installed in prepared wall openings, and shall use pressure type and sill anchors to maintain stability.
- B. Where grouting is required in masonry installations, frames shall be braced or fastened in such a way that will prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 4" maximum slump consistency, hand troweled into place. Grout mixed to a thin "pumpable" consistency shall not be used.
- C. Doors shall be installed and fastened to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Doors shall be adjusted to maintain perimeter clearances as specified herein. Shimming shall be performed by the installer as needed to assure the proper clearances are achieved.
- D. Installation of hardware items shall be in accordance with the hardware manufacturer's recommendations and templates. ANSI A115.IG, "Installation Guide for Doors and Hardware" shall be consulted for other pertinent information.

3.02 CLEARANCES

- A. The clearance between the door and frame head and jambs shall be 1/8" in the case of both single swing and pairs of doors.
- B. The clearance between the meeting edges of pairs of doors shall be 3/16" ± 1/16". For fire rated applications, the clearance between the meeting edges of pairs of doors shall be 1/8" ± 1/16".
- C. The clearance at the bottom shall be 3/4".
- D. The clearance between the face of the door and door stop shall be 1/16" to 1/8".
- E. All clearances shall be, unless otherwise specified, subject to a tolerance of ± 1/32".

END OF SECTION