

**Construction Specification****(FBO) HOLLOW METAL DOORS AND FRAMES****PART 1 - GENERAL****1.01 SUMMARY**

- A. Extent of steel doors and fully welded frames is indicated and scheduled on drawings.
- B. Related work specified elsewhere
  - 1. Section 01010 - Furnished By Owner Items (FBO)
  - 2. Section 08700 - Finish Hardware
  - 3. Section 08800 - Glass and Glazing
  - 4. Section 09900 - Painting

**1.02 REFERENCES**

- A. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- B. ASTM A568 - Standard Specification for Steel Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
- C. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
- D. 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.
- E. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcing.
- F. ANSI/SDI A250.6 Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
- G. ANSI/SDI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 1998.
- H. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- I. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames (Formerly SDI-105).
- J. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies.
- K. DHI A115.1G - Installation Guide for Doors and Hardware.
- L. SDI 111 - Recommended Selection and Usage Guide for Standard Steel Doors, Frames, and Accessories.
- M. ANSI/NFPA 252 - Fire Tests of Door Assemblies.
- N. ANSI/UL 10B - Fire Tests of Door Assemblies.
- O. ANSI/UL 10C - Positive Pressure Fire Tests of Door Assemblies.
- P. ANSI/UL 1784 - Air Leakage Tests of Door Assemblies
- Q. UL - Building Materials Directory; Underwriters Laboratories Inc.
- R. WH - Certification Listings; Warnock Hersey International Inc.
- S. NFPA 80 - Fire Doors and Fire Windows.

**1.03 QUALITY ASSURANCE**

- A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" ANSI/SDI A250.8 (SDI-100) and as herein specified.
- B. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ANSI/NFPA 252, UL10B or UL10C. Provide label by Underwriters Laboratory (UL), Warner Hersey (WH), or another nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
- C. Hurricane Resistant Door Assemblies: All openings requiring NOA (Notice of Acceptance) to Miami-Dade County Product Control shall bear a permanent label with the manufacture's name or logo, city, state and the following statement "Miami-Dade County Product Control Approved. All products will have successfully passed testing to the standards set forth by Miami Dade Building Code Compliance Office (BCCO) to achieve minimum Design Pressure rating of +/-70 PSF. Door products to be supplied shall meet the requirements of NOA # 04-0611.04, ANSI/SDI A250.13, Dade County Protocols TAS 201, PAS 202, and PAS 203.

**1.04 DELIVERY, STORAGE AND HANDLING**

- A. Deliver hollow metal frames fully welded with temporary spreader bars. Ship hollow metal doors individually wrapped in cardboard and palletized.
- B. Inspect items upon delivery. Reject damaged items.
- C. Store doors and frames at building site under cover. Place units on minimum 4" 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 and inspect item. Provide 1/4" spaces between stacked doors to promote air circulation.

**Construction Specification****(FBO) HOLLOW METAL DOORS AND FRAMES****PART 2 - PRODUCTS****2.01 MANUFACTURER**

- A. Ceco Door Products and/or similar.
  - 1. Manufacturer: Subject to compliance with requirements, provide steel doors and frames by a current member of the Steel Door Institute (SDI).

**2.02 MATERIALS**

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A1011 and ASTM A568 containing a minimum of 65% recycled steel.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A1008 and ASTM A568 containing a minimum of 65% recycled steel.
- C. Supports and Anchors: Fabricate of not less than 18-gage galvanized sheet steel.
- D. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A153, Class C or D as applicable.
- E. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, VOC compliant for building location, suitable as a base for specified finish paints. Thickness is 7/10 mils. Use water-based primer where available.

**2.03 FABRICATION, GENERAL**

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle to comply with ASTM/SDI A250.4 and ASTM/SDI A250.8. Wherever practicable, fit and assemble units in manufacturer's plant.
- B. Fabricate exterior doors, panels, and frames from cold rolled sheet steel. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16 gage inverted steel channels.
- C. Fabricate frames, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).

**2.04 STEEL DOORS**

- A. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI A250.8 requirements as follows:
  - 1. Doors: Level III - Model 2, Extra Heavy-Duty, minimum 16-gage faces.
- B. Fabricate exposed faces of doors from only stretcher level cold-rolled steel.
- C. Cap top of all doors, interior and exterior with flush weatherproof cap.
- D. Thermal-Rated (Insulating) Assemblies:
  - 1. At exterior locations and elsewhere as shown or scheduled, provide doors that have been fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM/UL 1784.
    - a. Unless otherwise indicated, provide thermal-rated assemblies with U factor of 0.24 Btu/(hr.ft<sup>2</sup>.°F) or better.
    - b. Polystyrene or polyurethane core is acceptable.
- E. Finish Hardware Preparation: Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Refer to SDI 111 for door and frame preparation for hardware.
  - 1. Reinforce doors and frames to receive surface-applied hardware per ANSI/SDI A250.6. Drilling and tapping for surface-applied finish hardware may be done at project site.
  - 2. Locate finish hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames (2001)", published by Door and Hardware Institute.
  - 3. All openings requiring Dade County Certification shall be provided with Foamed in Place Polyurethane Core bonded to both face sheets, and engineered for total surface support, impact resistance and thermal insulation.

**2.05 STEEL FRAMES**

- A. Provide metal frames for doors, of types and styles as shown on drawings and schedules. Conceal fastenings.
- B. Fabricate exterior and interior frames with mitered corners. Weld tabs and faceweld mitered corners.

**Construction Specification****(FBO) HOLLOW METAL DOORS AND FRAMES**

- C. Form exterior frames of Frames: 16 gage cold rolled steel per ASTM A1008.
- D. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on head of double-swing frames.
- E. Plaster Guards: Provide 26 gage steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
- F. Anchors: Floor anchors to be provided at each jamb.
  - 1. Anchors for all openings requiring Dade County Certification shall be meet the requirements of NOA # 04-0611.04 and ANSI/SDI A250.13

**2.06 FINISH**

- A. Preparation:
  - 1. Clean, treat, and paint exposed surfaces of steel door and frame units.
  - 2. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint per ANSI/SDI A250.10.
- B. Prime Painting
  - 1. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.
  - 2. Thickness is 7/10 mils.
  - 3. Refer to Section 09900 for painting of exterior ferrous metals

**2.07 LOUVERS**

- A. Provide sight proof stationary louvers for interior doors where indicated, constructed of inverted V-shaped or Y-shaped blades formed of 18 gauge cold-rolled steel. Space blades to provide not less than 20% free air opening.
- B. For fire-rated openings, provide tightly fitted, spring loaded, automatic closing louvers with operable blades, equipped with fusible links, arranged so that metal overlaps metal at every joint.

**PART 3 - EXECUTION****3.01 INSTALLATION**

- A. General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, ANSI/SDI A250.11, HHI A115.1G, and as herein specified.
- B. Placing Frames: Comply with provision of ANSI/SDI A250.11 or as otherwise required by manufacturer's recommendations.
  - 1. At masonry and concrete construction coat entire inside surface of frames with asphaltic paint to reduce corrosion.
  - 2. At Concrete Tilt Up Panel Construction, hollow metal frames *must* be set and secured in place prior to pouring of panel.
  - 3. In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.
  - 4. At in-place masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
  - 5. Install fire-rated frames in accordance with NFPA Std. No. 80.
  - 6. In metal stud partition, install at least 3 wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with self-tapping screws.
- C. Door Installation:
  - 1. Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI A250.8.
  - 2. Place fire-rated doors with clearances as specified in NFPA 80.
- D. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

**3.02 ADJUST AND CLEAN**

- A. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

**END OF SECTION**