

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Flush Steel Doors.
- B. Steel frames.

1.2 RELATED SECTIONS

- A. Section 08710 - Door Hardware.
- B. Section 08800 - Glazing.

1.3 SUBMITTALS

- A. Shop Drawings: Door, frame, and hardware schedule. Show types, quantities, dimensions, specified performance, and design criteria, materials and similar data for each opening required.
 - 1. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared and coordinated to receive hardware.
 - 2. Indicate door elevations, internal reinforcement, closure method, and cutouts for glass lights and louvers.

1.4 QUALITY ASSURANCE

- A. Supplier: A direct account of the manufacturer who has on permanent staff, an Architectural Hardware Consultant (AHC), a Certified Door Consultant (CDC) or an Architectural Openings Consultant (AOC), who will be available to consult with the Architect and Contractor regarding matters affecting the door and frame openings.
- B. Manufacturer Qualifications: Member of the Steel Door Institute.
- C. Installer: Minimum five years documented experience installing products specified this Section.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Handle, store and protect products in accordance with the manufacturers printed instructions and ANSI/SDI A250.10 and NAAMM/HMMA 840.

- B. Store doors vertically in a dry area, under a proper vented cover. Place on 4 inch (102 mm) high wood sills to prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.
- C. Store frames in an upright position with heads uppermost under cover. Place on 4 inch (102 mm) high wood sills to prevent rust and damage. Store assembled frames five units maximum in a stack with 2 inch (51 mm) space between frames to promote air circulation.
- D. Do not use non-vented plastic or canvas shelters to prevent rust or damage.
- E. Should wrappers become wet, remove immediately.

1.6 COORDINATION

- A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.
- B. Coordinate Work with frame opening construction, door and hardware installation.
- C. Sequence installation to accommodate required door hardware.
- D. Verify field dimensions for factory assembled frames prior to fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Subject to compliance with requirements, provide products by the following available manufacturer or equivalent product which meets the specification of this section:
 - 1. Welded Frames and Doors:
 - a. Curries Mfg., Inc.
 - b. Steelcraft.
 - c. Ceco Door.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Provide all steel doors and frames from a single manufacturer.

2.2 DOORS

- A. General: Construct exterior doors to the following designs and gages:
 - 1. Include galvanized components and internal reinforcements.
 - 2. Prime Finish Doors: Clean, phosphatize and factory prime painted doors indicated on Door Schedule as HM.
 - 3. Glass moldings and stops:
 - a. Fabricate from 24 gage (0.6 mm) steel conforming to:

- 1) Interior openings ASTM designation A 366 cold rolled steel.
 - 2) Exterior openings ASTM designation A 924 Zinc-Iron Alloy-Coated galvanized steel with a zinc coating of 0.06 ounces per square foot (A60) for exterior openings.
 - b. Install trim into the door as a four sided welded assembly with mitered, reinforced and welded corners.
 - c. Trim: identical on both sides of the door.
 - d. Exposed fasteners are not permitted.
 - e. Labeled and non-labeled doors: use the same trim.
 - f. Acceptable mounting methods:
 - 1) Fit into a formed area of the door face, not extending beyond the door face, and interlocking into the recessed area
 - 2) Cap the cutout not extend more than 1/16 inch (1.6 mm) from the door face.
 4. Hardware Reinforcements:
 - a. Hinge reinforcements for full mortise hinges: minimum 7 gage (4.7 mm).
 - b. Lock reinforcements: minimum 16 gage (1.3 mm).
 - c. Closer reinforcements: minimum 14 gage (1.7 mm) steel, 20-inch (508 mm) long.
 - d. Galvanized doors: include galvanized hardware reinforcements.
 - e. Projection welded hinge and lock reinforcements to the edge of the door.
 - f. Provided adequate reinforcements for other hardware as required.
- B. Full Flush Doors:
1. Performance:
 - a. Physical performance: 5 million cycles per ANSI A250.4.
 - b. Thermal performance (gasketed), ASTM C236.
 - c. Polyurethane core, 0.09 U-factor.
 2. Door Thickness: 1-3/4 inches (45 mm).
 3. Door gauge: 16ga.
 4. Door faces reinforced and sound deadened as follows:
 - a. Polyurethane Core: Full 1-3/4 inches (45 mm) thick rigid polyurethane, adhered to inside of door faces and polyurethane core with waterproof adhesive for bond strength and rust prevention.
 5. Vertical edge seams: Provide doors with continuous vertical mechanical inter-locking joints at lock and hinge edges. Finish edges as follows:
 - a. Welded Vertical Edges (W): Continuous vertical mechanical interlocking joints; edge seams welded, epoxy filled, and ground smooth.
 6. Bevel hinge and lock door edges 1/8 inch (3 mm) in 2 inches (50 mm). Square edges on hinge and/or lock stiles are not acceptable.
 7. Reinforce top and bottom of doors with galvanized 14 gage (1.7 mm), welded to both panels.
 8. Glazing Bead: Formed steel sheet or snap-in Designer trim.

2.3 DOOR FRAMES

- A. Flush Steel Frames:
1. Performance:
 - a. Physical performance: 5 million cycles per ANSI A250.4
 2. Construction: Factory-welded three sided frames.
 - a. Full profile welded:

- 1) Weld miter joints between head and jamb faces completely along their length either internally or externally.
 - 2) Internally weld perimeter profile joints full length of soffit and rabbets with hairline seams on external meeting surfaces. Grind and finish face joints smooth.
3. Profile:
- a. 2 inches (51 mm) face dimension with 5/8 inch (16 mm) high stop, and types and throat dimensions indicated on the Door Schedule.
 - b. Frame gauge: 14ga.
4. Provide following reinforcement and accessories:
- a. Hinge Preparation for 4-1/2 inches (114 mm) high, standard weight, or heavy weight, full mortise hinges; with plaster guard. Use high frequency hinges at the top of all doors.
 - b. Strike preparation (single doors) for 4-7/8 inch (123 mm) universal strike; with plaster guard.
 - c. Silencers. Prepare frames to receive inserted type door silencers, 3 per strike jamb on single doors, and 2 per head for pair of doors. Stick-on silencers are not permitted.
5. Finish: A-60 hot dipped galvanized with 3 coats of shop applied oil based enamel paint
Submit color sample for approval.

2.4 ACCESSORIES

- A. Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.
- B. Astragals for pairs of doors: Manufacturer's standard for labeled and non-labeled openings.
- C. Door Bottom:
 1. Characteristics: Electrometric, continuous strip, screw-attached to recessed bottom door channel for concealed installation; double-sealing; acceptable for fire-rated doors up to 3 hour rating.
- D. Plaster Guards: Same material as door frame, minimum 24 gage (0.6 mm) minimum; provide for all strike boxes.
- E. Silencers: Resilient rubber, Inserted type, three per strike jamb for single openings and two per head for paired openings. Stick-on silencers shall not be permitted except on hollow metal framing systems.
- F. Glazing: Specified in Section 08800.

2.5 FABRICATION

- A. Steel Frames:
 1. Factory-welded frames: Head and jamb intersecting corners mitered at 45 degrees, with back welded joints ground smooth.

- a. Continuous face weld the joint between the head and jamb faces along their length either internally or externally. Grind, prime paint, and finish smooth face joints with no visible face seams.
- b. Externally weld, grind, prime paint, and finish smooth face joints at meeting mullions or between mullions and other frame members per a current copy of ANSI/SDI A250.8.
- c. Provide two temporary steel spreaders (welded to the jambs at each rabbet of door openings) on welded frames during shipment. Remove temporary steel spreaders prior to installation of the frame.

2.6 FINISHES

1. Chemical Treatment: Treat steel surfaces to promote paint adhesion.
2. Factory Prime Finish: Meet requirements of ANSI A 250.10.
3. A-60 hot dipped galvanized with 3 coats of shop applied oil based enamel paint. Color: Bronze. Submit color sample for approval.

PART 3 - EXECUTION

3.1 EXAMINATION

1. Verify that project conditions are acceptable before beginning installation of frames.
2. Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness.
3. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.
4. Do not begin installation until conditions have been properly prepared.
5. Correct unacceptable conditions before preceding with installation.

3.2 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's printed installation instructions and with Steel Door Institute's recommended erection instructions for steel frames ANSI A250.11 and NAAMM/HMMA 840.
- B. Remove temporary steel spreaders prior to installation of frames.
- C. Set frames accurately in position; plumb, align and brace until permanent anchors are set. After wall construction is complete, remove temporary wood spreaders.
- D. Field splice only at approved locations indicated on the shop drawings.
- E. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.
- F. Provide full height 3/8 inch (9.5 mm) to 1-1/2 inch (38 mm) thick strip of polystyrene foam blocking at frames requiring grouting where continuous hinges are specified. Apply the strip to the back of the frame, where the hinge is to be installed, to facilitate field drilling or tapping.
- G. Glaze and seal exterior transom, sidelight and window frames in accordance with HMMA-820 TN03.

- H. Apply hardware in accordance with hardware manufacturers' instructions and Section 08710 of these Specifications. Install hardware with only factory-provided fasteners. Install silencers. Adjust door installation to provide uniform clearance at head and jambs, to achieve maximum operational effectiveness and appearance.

3.3 ADJUST AND CLEAN

- A. Adjust doors for proper operation, free from binding or other defects.
- B. Clean and restore soiled surfaces. Remove scraps and debris and leave site in a clean condition.
- C. Finish Coat Touch-Up: Immediately after erection, clean areas of finish coat, and apply touch-up of compatible air-drying paint.

3.4 PROTECTION

- A. Protect installed products and finished surfaces from damage during construction.

3.5 SCHEDULES

- A. All new doors shown on plan to be the following:

<u>DOOR#</u>	<u>SIZE</u>	<u>FRAME MT.</u>	<u>DOOR MT.</u>	<u>SERIES</u>	<u>LITE</u>	<u>COLOR</u>
1.	3' X 7' PAIR	HM.	HM	"L"	G	BRONZE
2.	3' X 7' PAIR	HM	HM	"L"	N4	BRONZE

END OF SECTION

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