SECTION 08110

STEEL DOORS AND FRAMES
(HOLLOW METAL)

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Steel Doors.
B. Steel Frames
C. Door Louvers.
D. Surface Preparation and Shop Coatings

1.2 RELATED SECTIONS

A. Section 01340 - Submittals
B. Section 03300 - Cast-in-Place Concrete
C. Section 04200 - Unit Masonry
D. Section 06100 - Rough Carpentry
E. Section 07900 - Joint Sealers
F. Section 08710 - Finish Hardware
G. Section 08800 - Glass and Glazing
H. Section 09900 - Painting

1.3 REFERENCES

A. ASTM A366 - Specification for steel, carbon, cold-rolled sheet, commercial quality.
B. ASTM E152 - Methods for fire tests of door assemblies.
C. ASTM A 525 - Specification for general requirements for steel sheet, zinc-coated (galvanized) by the hot-dip process.
D. ASTM B117 - Method of salt spray (fog) testing.
E. ASTM D1735 - Method for water fog testing of organic coatings.
F. SDI - Steel Door Institute - 100
SDI - Steel Door Institute - 105
G. DHI - Door Hardware Institute
H. ANSI - American National Standard Institute
I. NFPA - National Fire Protection Agency - 80 Fire Rated Doors and Windows
J. NFPA - National Fire Protection Agency - 250 Fire Rated Assemblies

1.4 SUBMITTALS

A. Submit product data under provisions of Section 01340.
B. Submit a complete door and frame schedule, large scale details of door and frame construction, indicating all gauges, reinforcing, cutouts, anchors and anchor clips.
C. Submit labeled door and frame certification.

D. Do not fabricate hollow metal work without final shop drawing review.

E. Submit manufacturers certification that door and frame hardware reinforcing gages comply to ANSI/SDI 100.

1.5 QUALITY ASSURANCE

A. Conform to requirements of SDI-100.
B. Labeled door and frame construction to conform to NFPA 250.
C. Install door and frame assembly to conform to NFPA 80 for labeled glass indicated on door schedule.
D. Doors and frames shall be factory fabricated. All field modifications shall be approved by the Engineer.

1.6 QUALIFICATIONS

A. Steel Doors and Frames - Section 08110, and the Finished Hardware - Section 08710 shall be provided by a single supplier.

1.7 PACKAGING

A. Doors shall be fully wrapped in corrugated cardboard, single faced paper 42-pound with a 26-pound liner medium "B" flute, protecting all surfaces of the door. Flute shall be run the full height of the door.
B. Wood strips, 3/8 inches 2 inches commercial grade, finished one side for marking, extending 1/2 inch beyond the top and bottom of the door shall be temporarily applied to the edges of the door.
C. The corrugated cardboard and wood strip shall be held firmly in place by three (3) 3/8 inch by 18 GA steel bands on each door.
D. Wood strips shall be marked clearly giving door type, size, hand lock preparation, and mark number. The metal banding shall not interfere with the marking.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver doors, frames and windows to the job site in manufacturer's unopened packaging.
B. Store doors and frames upright in a protected area on wood runners or skids and covered with vented plastic.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Curries
B. Steel Craft
C. Or equivalent.

2.2 DOOR CONSTRUCTION

A. 18 gauge stretcher level steel, galvanized for all doors.
B. 1/8 inch bevel in two inches on hinge and lock edge.
C. Seams shall be continuously welded and ground smooth.

D. Top and bottom 14 gauge, cold-rolled steel reinforcing channels spot welded within door.
E. Mortise and reinforce doors for finish hardware in accordance with template. Requirements are furnished under finish hardware.
F. Hinge reinforcement - 12 gage, channel shape.
G. Lock face, flush bolts, surface mounted closers - 14 gage
H. All other surface mounted hardware - 14 gage.
I. Provide flush top cap sealing against water on all exterior doors.
J. Prepare exterior door bottoms to receive door bottoms.
K. Doors shall be reinforced, stiffened, sound deadened, and insulated with Kraft Honeycomb core completely filling the inside of the doors and laminated to both inside faces of the panels. The strength developed on the laminated assembly shall be 4000 pounds per square foot in compression and 1100 pounds per square foot in shear along the glue line.
L. Insulated doors shall have, rigid polystyrene foam board, bonded to the inside of both faces. The strength developed on the laminated assembly shall be 1500 PSF in compression and a shear strength of not less than 2500 PSF.
M. Any additional modifications to specified door construction, as required by Underwriters Laboratories and National Board of Fire Underwriters, to meet required fire rating, shall be performed at the factory, and doors must bear the U.L. seal for each rating so required.
N. Louvers - Roll formed steel, inverted "V" blade design; 50 percent free area.

2.3 FRAME CONSTRUCTION

A. Interior Frames - 16 gauge, Galvanized.
B. Exterior Frames - 16 gauge, Galvanized with thermal break.
C. All exterior frame joints and interior frames installed in masonry shall be continuously welded and ground smooth. Where galvanized coating has been burned or damaged, paint with Z.R.C. liquid zinc or equal. All joints in frame shall be watertight.
D. Knocked-down frames shall have a mechanical connection at the joints, which when assembled positively aligns the head with the jambs. Corners shall have tight, precision mitered joints with no exposed rivets or screws.
F. Hinge, Lock and Strike Reinforcement - 10 Gauge
G. Door Closer Reinforcement - 14 Gauge
H. Floor Clips - 18 GA minimum
I. Frame Anchors - Provide minimum three anchors per jamb as required for the adjoining wall construction. Provide anchors of not less than 18 gauge steel or 3/16 inch diameter wire adjustable.
J. Frame Splines - Same as frame
K. Glazing Beads - Same as frame
L. Reinforcement, stiffeners, and base angle clips shall be welded to inside surfaces of frames.

M. Locate hardware cutouts and reinforcing from templates obtained from the hardware supplier. Weld sheet steel dust covers over all cutouts in frames to prevent contact of mortar with reinforcing and lock strikes.
N. Attach glazing beads with countersunk flathead machine screws, spacing the bead to permit installation of glass plus setting material.
O. Turn edges of frames to form retainers for anchors.
P. Punch three (3) holes in top of strike jamb of door frames for application of silencers. Punch two (2) holes in head frame for pairs of doors.
Q. Before shipping, provide removable angle spreaders securely fastened to bottom of each jamb; do not remove until frames are secured in place.
R. Frames for U.L. Label doors and designated fixed glazing openings, shall be constructed in strict accordance with the requirements of Underwriters Laboratories for the designed fire rating and shall bear the U.L. Label for same.

2.4 FINISHING

A. Doors and frames shall be hot dipped galvanized, A60 coating.
B. Clean all surfaces of doors, frames, anchors and related items specified hereunder, by hot or cold phosphate treatment standard with the manufacturer. Following cleaning, apply one coat of rust-inhibitive prime paint and bake on. Prime all surfaces, including those which will be inaccessible after erection.
C. The finished work shall be strong and rigid, neat in appearance, and free from warp and buckle. Miters shall be well formed and in true alignment.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install frames in accordance with Steel Door Institute.
B. Install doors in accordance with Door Hardware Institute.
C. Coordinate with Masonry Wall Construction for anchor placement.
D. Coordinate installation of glass and glazing.
E. Install door louvers.

3.2 TOLERANCES

A. Maximum diagonal frame distortion: 1/16 inch measured with straight edge, corner to corner.

3.3 ADJUSTMENTS

A. Adjust hardware for smooth and balanced door movement.

END OF SECTION