

SECTION 08 10 00

STEEL DOORS AND FRAMES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section includes:
 - 1. All hollow metal doors and door frames (galvanized).
- B. Related work specified in other sections:
 - 1. Finish hardware – See Drawings
 - 2. Painting – Section 09 91 00.

1.03 QUALITY ASSURANCE

- A. Provide doors and frames complying with the SDI Standard 100-"Recommended Specifications Standard Steel Doors and Frames" and as herein specified.
- B. Obtain hardware templates from hardware supplier (Section 08 71 00) and obtain necessary hardware for factory application.
- C. Where noted on Door Schedule, provide nationally recognized testing agency label of proper classification. Label requirements take precedence over conflicting details. Advise the Architect of any conflict before fabricating work on that item is started.

1.04 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Coordinate with any special conditions of anchorage. Submit door/opening schedule on shop drawings indicating relationship of door, number of room, number and function of door, such as Corridor A-13 to Lavatory A-14.
 - 2. Shop Drawings: Include the following:
 - a. Elevations of each door design.
 - b. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 - c. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - d. Locations of reinforcement and preparations for hardware.
 - e. Details of each different wall opening condition.
 - f. Details of anchorages, joints, field splices, and connections.
 - g. Details of accessories.
 - h. Details of molding, removable stops, and glazing.
 - i. Detail of conduit and preparations for power, signal, and control systems.
 - j. Rating of doors and frames as noted on door/opening schedule and/or Code Plan.

3. Submit documentation for UL 10C or other approved testing agency stating doors have passed UBC Standard 7-2.

1.06 PRODUCT PROTECTION

- A. Deliver doors and frames in suitable crating or packaging to prevent damage in transit and storage.
- B. Storage at jobsite:
 1. Store frames on plywood and block at least 4" above plywood, under waterproof cover.
 2. Store doors under cover in a dry area with doors set upright with ¼ inch spacers between doors. Keep doors at least 4" above ground.
 3. Do not store HM material in a manner that traps excess humidity.
 4. Materials that are rusted prior to installation may be rejected.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. Approved Manufacturer(s): Steelcraft, Pioneer, Ceco, Curries.
- B. Accompany any request for acceptance of alternative manufacturers by descriptive details or brochures demonstrating compliance with specifications, and sample frame corner.

2.02 MATERIALS

- A. Steel: Commercial quality, level, cold rolled steel conforming to ASTM A366, free of scale and surface defects. Commercial quality hot rolled and pickled steel conforming to ASTM A569 may be used at contractor's option for interior frames. Where noted, form frames of galvanized steel conforming to ASTM A526 or A527, A60 zinc coating. Gauges are as follows unless otherwise noted:
 1. Interior Frames: 16 gauge.
 2. Exterior Frames: 14 gauge, galvanized.
 3. Flush Doors: 16 gauge galvanized (exterior), 18 gauge (interior).
 4. Rough Bucks and Stiffeners: 12 gauge.
 5. Miscellaneous Trim: 16 gauge.
- B. Rust-Inhibitive Primer
 1. Manufacturer's standard rust inhibitive baked-on primer. Provide additional primer for touch-up.
 2. Pretreat galvanized metal in accordance with paint manufacturer's recommendations.

2.03 FABRICATION

- A. Make hardware mortises and reinforcements according to templates. Provide hinge, lock, door holder and closer hardware reinforcements. Mortise, drill tap for hardware; fabricate grooves, rabbets as necessary for weatherstripping, soundstripping.

- B. Fabricate doors to a maximum tolerance of 1/16 inch from a straight edge when laid on face of door in any direction, including diagonal.
- C. Attach proper testing agency's labels as indicated on the Drawings. Provide equal labeled frames for labeled doors. Frames with glazing in rated walls must conform to UBC Standard 7.4 (hose stream test). Provide intumescent fire and smoke material for fire rated openings as required by door and frame manufacturer to comply with UL 10C, UBC Test 7-2.
- D. Clearances: Edge clearances shall be provided as follows:
 - 1. Between doors and frame, at head and jambs - 1/8"
 - 2. At door sills:

where no threshold is used	-	5/8" maximum to finish floor surface
where threshold is used	-	1/4" maximum between door and threshold
where required for hardware operation	-	as recommended by hardware manufacturer
 - 3. Between meeting edges of pairs of doors - 1/8"

2.04 METAL FRAMES

- A. Provide custom metal frames of the types and styles indicated on the drawings or schedules and complying with SDI 100 for materials and construction requirements.
- B. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, as shown on the drawings. Provide thermally broken frames at exterior wall.
- C. Miter corners on face of all frames, internally weld face and grind smooth exterior. Die coped frames at mullions and stops. Provide with floor anchors.
- D. Provide one removable and one fixed stop at perimeter of openings for glazed frames. Removable stop on secure side.
- E. Provide closed metal covers over all hardware cutouts to protect against mortar.
- F. Provide integral channel frames, subframes and stiffeners to structure where indicated or required for fastening and stiffening frames.
- G. In masonry walls, provide three (3) - 16 gauge corrugated, adjustable, slip type standard frame anchors up to 7'-6" height jamb; frames 7'-6" to 8'-0" - 4 anchors; frames over 8'-0" - 1 anchor for each 2' or fraction thereof in height. In labeled frames, anchors shall be non-removable.
- H. Provide steel spreader temporarily attached to feet of both jambs for welded frames.
- I. Provide three factory installed silencers on single door frames at strike jamb; four (two at each head) silencers on double door frames.
- J. Hinge reinforcements to have 10 gauge straps welded directly above and below each hinge pocket.
- K. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26.

2.05 FLUSH HOLLOW METAL DOOR

- A. Provide custom metal doors for the types and styles indicated on the Drawings or schedules and complying with SDI 100 for materials and construction requirements. Fully insulate exterior doors.

- B. Close top and bottom edges of all doors with a continuous recessed steel channel not less than 16 ga., full width spot welded to both faces. Provide an additional flush closing channel at top edge for exterior doors. Provide openings to bottom closure of exterior door to permit escape of moisture.
- C. Edge profiles to be 1/8" bevel in 2".
- D. Provide glass light openings as indicated complete with one fixed stop and one removable stop fastened with flat head Phillips screws not over 10 inches o.c.
- E. For 60 minute and greater rated doors installed in enclosed stairways, conform to maximum transmitted temperature end point of 450° as specified in UBC Standard No. 43-2.
- F. All doors to have minimum 16-gauge lock reinforcement and either continuous 14-gauge hinge rail or minimum 8-gauge plate hinge reinforcement.
- G. All faced edge seams to be continuously wire welded, finished smooth.

2.06 HOLLOW METAL PANELS

- A. Provide hollow metal panels of same materials, construction, and finish as specified for adjoining hollow metal frames.

2.07 SHOP PAINTING

- A. Completely clean all frames by degreasing process, followed by one coat rust inhibitive primer equal to a salt spray test (5% solution) of 70 hours. Thoroughly prime all surfaces without runs, smears, or bare spots, and under and inside all removable stops.
- B. Completely clean all doors of impurities and pressure sand to a smooth surface and correct all irregularities with metallic putty sanded smooth. Provide one (1) spray coat of primer, baked on. Thoroughly paint unexposed inside surfaces of exterior doors, fire doors, and other doors occurring in excessive moisture area.
- C. Provide vinyl wash pre-treatment of galvanized steel as recommended by shop primer manufacturer.
- D. Provide primer for field touch up of rusted areas, splices, connections, welds and abrasions.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Prime-Coat Touchup: Prior to erection sand smooth rusted, damaged, connection points and welded areas of prime coat and apply touchup primer.
- B. Securely fasten Work in place, without twists, warps, bulges or other unsatisfactory defacing of workmanship. Set plumb, level square to proper elevation true to line and eye. Set clips and other anchors with piston driven fasteners equal to Ramset or drilled-in anchors as approved. Fasten units and trim together with neat, uniform and tight joints.
- C. As masonry is being laid fill jambs solid with mortar and provide accurately cut wood spreaders temporarily at mid-section of frames, install jamb anchors.
- D. At steel columns and/or concrete surfaces, install sub-frame or rough bucks as specified. At steel columns use 5/16" diameter self-tapping metal screws and at concrete use expansion bolts of the same diameter. Install frame to sub-frame and/or rough buck with countersunk self-tapping metal screws. Fill screw holes with a suitable metallic filler, sand and prime.

- E. Where field installed hardware is required, provide wood or other suitable filler to avoid drilling and tapping into mortar inside frames.
- F. For all attachments including removable stops, use flat head self-tapping screws. Drill and tap in the field for surface mounted closers, brackets, rim exit devices, door holders, and other surface hardware. At horizontal exterior surfaces, set screws with neoprene gaskets or set with caulking compound under screw head and wipe clean.
- G. All field splices to be welded and filled with body putty and ground smooth, no exposed screw heads will be accepted. Locate splices where shown on final reviewed shop drawings.

3.02 PROTECTION

- A. Protect installed hollow metal work against damage from other construction.
- B. Repair or replace all damaged work at no extra cost to Owner.

END OF SECTION 08 10 00

SECTION 08 36 00

SECTIONAL METAL OVERHEAD DOORS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work specified in this section.

1.02 SUMMARY

- A. Section includes: Furnishing and installing sectional metal overhead doors.
- B. Related work in other sections:
 - 1. Doorframes - Section 05 50 00.

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.
 - 1. Shop Drawings: Submit fabrication and erection drawings. Show field verified dimensions, components, details and connections to other construction.
 - 2. Wiring Diagrams: Submit wiring diagrams for operators and controls, for coordination with Division 26.
 - 3. Field verify existing or coordinate with proposed electrical feeder voltage/phase and adjust submittal so motors are compatible.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Package, handle, deliver and store at the job site in a manner that will avoid damage or deformation.

1.05 WARRANTY

- A. The overhead door manufacturer shall warrant the overhead doors and operators to be free of defective materials and workmanship for a minimum period of one year from the date of Substantial Completion.
- B. In addition, the installed doors shall be warranted against rust penetration of the undamaged paint finish for a minimum period of two years from the date of Substantial Completion.
- A. Submit per Section 01 78 23.

PART 2: PRODUCTS

2.01 MANUFACTURER

- A. Overhead Doors: Provide products by one of the following: Wayne-Dalton, Crawford, Raynor, or Overhead Door are acceptable.
- B. All components for each door to be the product of one manufacturer or items purchased by and approved by the manufacturer, except as noted.

2.02 FABRICATION

A. Construction, Overhead Doors

1. Door sections: Nominal 2" thick constructed of not less than 26 gauge embossed steel faces permanently laminated to both sides of a high density polyurethane foam core. Section edges: Formed to provide a non-conductive thermal break between the inside and outside steel faces and provide an interlocking profile to insure a weathertight seal with the adjacent panel.
2. Galvanized steel end caps: Sufficiently wide to accommodate double-end roller flanges. Seal panel ends with a waterproof mastic before applying. Provide steel reinforcing plates for all intermediate hinge and hardware attachment.
3. Design and installed door and hardware to withstand a minimum wind loading of 20 psf. Provide U-channel or truss-type struts as necessary to eliminate bowing or sagging.
4. Finish: To be selected from manufacturer's standard colors.

C. Hardware

1. Overhead doors to have 25,000 cycle, oil tempered, helical wound torsion type springs on a solid steel shaft complete with bearing assemblies. Provide blocking inside spring to keep from sagging if necessary.
2. Furnish inclined wedge type track assembly for standard lift operation. Power operated doors shall have 3" track with heavy-duty double-end roller hinges. 3" rollers shall have continuous steel rims with hardened ball bearings in case hardened inner and outer races with long stems.
3. Overhead doors shall have a chain hoist for manual operation.

- D. Weatherstripping: Furnish weatherstripping to meet or exceed code required air infiltration requirements. Weatherstripping shall, at a minimum, consist of a heavy-duty flap type jamb seal and head seal and U-shaped bottom astragal. Joints between door sections shall have a compressible bulb type gasket. Weatherstripping materials shall be PVC, EPDM or coated Neoprene designed for heavy duty, low temperature, high abrasion applications.

PART 3: EXECUTION

3.01 INSTALLATION

- A. Install doors in accordance with reviewed shop drawings and in accordance with manufacturer's current printed instructions.
- B. Touch-up mars and abraded spots after installation with factory furnished primer.
- C. Adjust doors for proper operation after installation and prior to acceptance of building.

3.02 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional overhead doors. Refer to Section 01 79 00 Demonstration and Training.

END OF SECTION 08 36 00