

**SECTION 08110
STEEL DOORS**

PART 1 - GENERAL

1.01 SUMMARY

- A. Work Included: The Work of this Section includes, but is not limited to, the following:
1. Non-rated and fire-resistance rated flush design hollow construction type steel doors, as indicated.
 2. Fully welded, steel door frames, as indicated.
 3. Glazed openings and other accessories, as indicated.

1.02 SUBMITTALS

- A. Product Data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- B. Shop Drawings showing fabrication and installation of steel doors. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and reinforcements, and details of joints and connections.
1. Provide schedule of doors.
 2. Coordinate glazing frames and stops with glass and glazing requirements.
- C. Label Construction Certification: For door assemblies required to be fire-rated and exceeding limitations of labeled assemblies, submit manufacturer's certification that each door and frame assembly has been constructed to conform to design, materials and construction equivalent to requirements for labeled construction.

1.03 QUALITY ASSURANCE

- A. Provide doors complying with ANSI/SDI 100 "Recommended Specifications for Standard Steel Doors" and as specified.
- B. Acoustical Testing Agency Qualifications: An independent testing agency that is an acoustical laboratory accredited by the National Voluntary Laboratory Accreditation Program of NIST.
- C. Source Limitations: Obtain sound control doors, including gasketing, thresholds, hinges (when integral with design), and other appurtenances essential for sound control, from a single manufacturer specializing in producing this type of work, unless otherwise approved by Architect.
- D. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies tested for fire-test-response characteristics per ASTM E 152, and are labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors.
- B. Inspect doors on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If cardboard wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to promote air circulation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements provide steel doors as manufactured by the following, or approved equal:
 1. Standard Hollow Metal Doors:
 - a. Gensteel Doors – Genguard Series
 - b. Ceco Door
 - c. Trudoors

2.02 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653, Commercial Steel (CS), Type B; with minimum A40 zinc-iron-alloy (galvannealed) coating designation.
- C. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.
- D. Glass: Reuse glass from doors being replaced. New glass shall be 1/4" Laminated Safety Glass.
- F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics

2.03 STANDARD STEEL DOORS

- A. Steel Doors: Provide 1-3/4-inch-thick doors of materials and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:

2.04 FABRICATION

- A. Fabricate steel door units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ANSI/SDI 100 requirements.
 - 1. Internal Construction: One of the following manufacturer's standard core materials according to SDI standards:
 - a. Resin-impregnated paper honeycomb, unless otherwise indicated.
 - b. Rigid mineral fiber with internal sound deadener on inside of face sheets (at acoustically rated doors).
 - 2. Clearances: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between non-fire-rated pairs of doors. Not more than 3/4 inch at bottom.
 - a. Fire Doors: Provide clearances according to NFPA 80.
- B. Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from only cold-rolled steel sheet.
- C. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors"
- D. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- E. Galvannealed Steel Doors: For the following locations, fabricate doors from galvanized steel sheet according to SDI 112. Close top and bottom edges of doors flush as an integral part of door construction or by addition of minimum 0.0635-inch-thick galvanized steel channels, with channel webs placed even with top and bottom edges. Seal joints in top edges of doors against water penetration.
- F. Exposed Fasteners: Unless otherwise indicated, provide security countersunk flat or oval heads for exposed screws.
- G. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.
 - 1. Unless otherwise indicated, provide thermal-rated assemblies with U-value rating of 0.41 Btu/sq. ft. x h x deg F or better.
- H. Sound-Rated (Acoustical) Assemblies: Where shown or scheduled, provide door and frame assemblies fabricated as sound-reducing type, tested according to ASTM E 1408, and classified according to ASTM E 413.
 - 1. Provide acoustical assemblies with STC sound ratings of 50 or better, as scheduled.
- I. Hardware Preparation: Prepare doors to receive existing mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of SDI 107 and ANSI A115 Series specifications for door and frame preparation for hardware.

1. Hardware for sound rated doors shall be factory installed by the manufacturer of the door.
 2. For concealed overhead door closers, provide space, cutouts, reinforcing, and provisions for fastening in top rail of doors or head of frames, as applicable.
- J. Reinforce doors to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
1. Provide additional reinforcing indicated on the drawings or as required at connections between hardware closers and door assembly.
- K. Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors."
- L. Glazing Stops: Minimum 0.0359-inch-thick steel or 0.040-inch-thick aluminum.
1. Provide non-removable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
 2. Provide screw-applied, removable, glazing beads on inside of glass, louvers, and other panels in doors.
 3. Provide stops on doors as indicated, except at specialty function Bedroom doors. Refer to the Drawings and Door Schedule for specific door types and locations.

2.07 FINISHES, GENERAL

- A. Finish shall be a powder coat red oak wood grain as by Decoral System or equal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install steel doors and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Door Installation: Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.
1. Fire-Rated Doors: Install with clearances specified in NFPA 80.

3.02 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items just before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames that are warped, bowed, or otherwise unacceptable.
- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors .

END OF SECTION 08110