

SECTION 081400

WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Solid-core flush wood doors with wood-veneer faces.
 - a. Factory finishing flush wood doors.
 - b. Factory fitting flush wood doors to frames and factory machining for hardware.
 - c. Factory glazing of flush wood doors.
- 2. Molded doors.
- 3. Exterior steel entry doors.
- 4. Sliding patio doors.

B. Related Sections:

- 1. Division 06 Section "Interior Finish Carpentry" for wood door frames.
- 2. Division 08 Section "Glazing" for glass view panels in flush wood doors.
- 3. Division 09 Sections "Exterior Painting" and "Interior Painting" for field finishing doors.

1.3 SUBMITTALS

- A. General: Submittals for Sections 081113, 081416 and 087100 shall be made concurrently.
- B. Product Data: For each type of door indicated. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- C. LEED Submittals:
 - 1. Product Data for Credit MR 2.1: Provide certifications for FSC Certified Tropical Wood.
 - 2. Product Data for Credit MR 2.2: Environmentally Preferable Materials.
 - a. FSC-certified wood products: Provide wood products that come from suppliers that have been granted chain-of-custody by Forest Stewardship Council.
 - b. Low or No emissions of VOC: Provide materials that comply with VOC limits in reference tables.

- D. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate requirements for veneer matching.
 - 4. Indicate doors to be factory finished and finish requirements.
 - 5. Indicate fire-protection ratings for fire-rated doors.
- E. Samples for Selection: For factory-finished doors.
- F. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body. Wood door distributor must be shown in chain-of-custody.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.
- C. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- D. Forest Certification: Provide doors made with not less than 70 percent of wood products obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- E. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 and UL 10C.
 - 1. Include all requirements as part of the door construction per Category "A" guidelines."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 2. Warranty Period for Solid-Core Interior Flush Wood Doors: Life of installation.
 3. Warranty Period for Molded Interior Doors: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. FSC-Certified Flush Wood Doors:
 - a. Algoma Hardwoods Inc.: Smartwood Environmentally Certified Doors.
 - b. Marshfield Door Systems, Inc.: Environmental Class Doors.
- B. Provide FSC-Certified wood doors for non-fire rated and 20 minute fire-rated wood doors. Provide standard flush wood doors for fire rated doors over 20 minute rating.

2.2 FLUSH WOOD DOOR CONSTRUCTION, GENERAL

- A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- C. Particleboard-Core Doors:
1. Particleboard: ANSI A208.1, Grade LD-2 , made with binder containing no urea-formaldehyde resin.
 2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
- D. Structural-Composite-Lumber-Core Doors:
1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
 - b. Screw Withdrawal, Edge: 400 lbf.
 2. Provide doors with structural-composite-lumber cores instead of particleboard cores for the following doors:
 - a. Doors indicated to receive exit devices.

- b. Doors where oversized glass lites exceed more than 40 percent of the door surface area.
 - c. Doors where louvers exceed more than 40 percent of the door surface area.
- E. Fire-Protection-Rated Doors: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
- 1. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
- F. Mineral-Core Doors:
- 1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
 - 2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
 - 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
- 1. Grade: Premium, with Grade A faces.
 - 2. Species: White maple.
 - 3. Cut: Plain sliced (flat sliced).
 - 4. Match between Veneer Leaves: Book match.
 - 5. Assembly of Veneer Leaves on Door Faces: Running match.
 - 6. Exposed Vertical Edges: Solid stock, same species as faces.
 - 7. Core: Particleboard except where structural composite lumber is required.
 - 8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.
 - 9. Adhesives: Type I per WDMA TM-6.
 - 10. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

2.4 LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
- 1. Wood Species: Same species as door faces.
 - 2. Profile: Lipped tapered beads.
 - 3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
- B. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch-thick, cold-rolled steel sheet; with baked-enamel- or powder-coated finish; and approved for use in doors of fire-protection rating indicated.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
 2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Cut and trim openings through doors in factory.
 1. Light Openings: Trim openings with moldings of material and profile indicated.
- D. Factory Glazing: Provide glazing for all doors. Provide glass as specified in Division 08 Section "Glazing." Install fire-rated glass as required by the glazing manufacturer.

2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Finish doors at factory.
- C. Transparent Finish:
 1. Grade: Premium.
 2. Finish: WDMA TR-4 conversion varnish or TR-6 catalyzed polyurethane.
 3. Staining: None required.
 4. Effect: Open-grain finish.
 5. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."

- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- C. Job-Fitted Doors (molded doors): Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - a. Comply with NFPA 80 for fire-rated doors.
 - 2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
 - 3. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors (flush wood doors): Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION