

**SECTION 081416**  
**FLUSH WOOD DOORS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
1. Solid-core doors with transparent finish.
  2. Solid-core doors with opaque finish.
  3. Factory finishing flush wood doors.
  4. Factory fitting flush wood doors to frames and factory machining for hardware.
  5. Wood door frames.
- B. Related Sections:
1. Section 087000 "Hardware".
  2. Section 088000 "Glazing" for glass view panels in flush wood doors.

**1.2 ACTION SUBMITTALS**

- A. Product Data: For each type of door. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
1. Dimensions and locations of blocking.
  2. Dimensions and locations of mortises and holes for hardware.
  3. Dimensions and locations of cutouts.
  4. Undercuts.
  5. Requirements for veneer matching.
  6. Doors to be factory finished and finish requirements.
  7. Fire-protection ratings for fire-rated doors.
- C. Samples: For factory-finished doors.
1. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
  2. Louver blade and frame sections, 6 inches long for each material and finish specified.
- D. LEED Submittals:
1. Complete the LEED Material Buyout Form (MBoF) with all materials provided to the project. A complete submittal includes providing all material costs in the MBoF and all of the supporting documentation for the following credits:
    - a. MRc3 - Sourcing of Raw Materials - Recycled Content: Provide product data for pre- and post- consumer recycled content.

- b. MRc3 - Sourcing of Raw Materials – Forestry Stewardship Council (FSC) Certified Wood: For all wood products designated in this specification as “FSC certified,” provide vendor invoices with the vendor’s Chain-of-Custody (COC) number and identify each FSC certified product on a line-item basis. If FSC wood products are modified off-site by an architectural woodworker or millworker, the woodworker shall have an FSC COC number.

## PART 2 - PRODUCTS

### 2.1 LEED REQUIREMENTS

- A. Composite Woods: Composite wood and agri-fiber products shall be made using ultra-low-emitting formaldehyde (ULEF) resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde (NAF).

### 2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or equal:
  1. Algoma Hardwoods, Inc.
  2. Eggers Industries.
  3. Marshfield Door Systems, Inc.

### 2.3 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- B. WDMA I.S.1-A Performance Grade:
  1. Heavy Duty unless otherwise indicated.
  2. Extra Heavy Duty: Level 1 Large Meeting and Training Rooms, multiple user toilets, assembly spaces, corridors and exits, break rooms.
- C. 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 or UL 10C.
  1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
  2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
  3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- D. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.
- E. Particleboard-Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-2, made with binder containing no urea-formaldehyde.
2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
3. Provide doors with structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

F. 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.

G. 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.

## 2.4 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors:

1. Grade: Premium, with Grade AA faces.
2. Species: **White Oak, rift cut (Addendum 03)** to match Architect's wood veneer sample as specified in Section 064023.
3. Cut, Match between Veneer Leaves: Rift cut, slip-matched veneers. Where door occurs in wood paneled partition, match door to adjacent wood veneer panels. Doors visible in one space are to match each other.
4. Premium-grade doors.
5. Exposed Vertical and Top Edges: Same species as faces or a compatible species - edge Type A.
6. Core: Douglas Fir, glued wood stave, no joints at stile to rail connections.
7. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
8. WDMA I.S.1-A Performance Grade: Heavy Duty.

## 2.5 DOORS FOR OPAQUE FINISH

A. Interior Solid-Core Doors:

1. Grade: Premium.
2. Faces: MDO, applied to standard-thickness, closed-grain, hardwood face veneers or directly to high-density hardboard crossbands.
3. Exposed Vertical and Top Edges: Any closed-grain hardwood.
4. Core: Douglas Fir, glued wood stave, no joints at stile to rail connections.
5. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
6. Adhesives: Type I per WDMA T.M.-6.

7. WDMA I.S.1-A Performance Grade: Heavy Duty.

## 2.6 LIGHT FRAMES AND LOUVERS

- A. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.

## 2.7 WOOD DOOR FRAMES

- A. Frames: Provide manufacturer's standard wood frames unless otherwise indicated.
1. Wood Species and Finish: Hardwood to match sample in Section 064023.
  2. Profile: Manufacturer's standard shape, or as otherwise shown on Drawings.

## 2.8 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 NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
- C. Openings: Factory cut and trim openings through doors.
1. Light Openings: Trim openings with moldings of material and profile indicated.
  2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."

## 2.9 FINISHING

- A. General: Comply with "Premium" Grade requirements of Section 5 of the NAAWS with shop applied coatings applied in accordance with manufacturer's written instructions.
- B. Transparent Finish:
1. Finish: WDMA I.S. 1A TR-6 Catalyzed Polyurethane.
- C. Opaque Finish:
1. North American Architectural Woodwork Standards. Grade: Premium.
  2. Color and Sheen: Match Architect's sample.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed 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 Section 087100 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

1. Install fire-rated doors according to NFPA 80.
2. Install smoke- and draft-control doors according to NFPA 105.
3. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) 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 (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

**END OF SECTION**

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