

Section 08212 -Stile and Rail Wood Doors

This Section uses the term “Architect.” Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project’s Specifications; Section titles may have changed.

PART 1 - General

1.1 Summary

A. This Section includes the following:

1. Interior stile and rail wood doors.
2. Interior fire-rated stile and rail wood doors.
3. Interior fire-rated wood door frames.
4. **[Shop primed] [Factory finished]** stile and rail wood doors.
5. **[Shop primed] [Factory finished]** wood door frames.
6. Factory machining stile and rail wood doors for hardware.
7. Factory machining wood door frames for hardware.

B. Related Sections include the following:

1. Division 1 Section “LEED Requirements” for additional LEED requirements.
2. Division 6 Section “**[Finish Carpentry] [Interior Architectural Woodwork]**” for wood door frames.
3. Division 6 Section “Interior Architectural Woodwork” for requirements for veneers from the same flitches for both architectural woodwork and stile and rail wood door panels.
4. Division 6 Section “Paneling” for requirements for veneers from the same flitches for both wood paneling and stile and rail wood door panels.
5. Division 8 Section “Glazing” for glass vision panels in stile and rail wood doors.

1.2 Submittals

A. Product Data: For each type of door.

Delete first paragraph below if not required or revise to suit Project.

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 other pertinent data.

First paragraph below assumes manufacturer’s standard-size Samples are acceptable. Revise to suit Project.

C. Samples: For each species and finish required.

D. LEED Submittals:

Retain subparagraph below if wood products are required for LEED Credit EQ 4.1 and EQ 4.2; coordinate with requirements selected in Part 2.

1. Credits MR 4.1 and MR 4.2: Interior doors to contain a minimum of 55% recycled & recovered content, as certified by SCS (Scientific Certification Systems). Include evidence that door manufacturer is certified with SCS by providing certificates and labeling.

Retain subparagraph below if Forestry Stewardship Council Chain of Custody is required for LEED credit MR7; coordinate with requirements selected in part 2.

2. Credit MR 7: Interior doors to contain a minimum of 70% of wood based materials certified compliant with the Forestry Stewardship Council Chain of Custody FSC Principles and Criteria for wood building components. Include evidence that door manufacturer is certified with FSC by providing certificates and appropriate documentation.

Retain subparagraph below if low-emitting materials are required for LEED Credit EQ 4.4; coordinate with requirements selected in Part 2 for composite wood materials and adhesives.

3. Credit EQ 4.4: Adhesive and composite wood materials manufacturers' product data indicating urea-formaldehyde content.

1.3 Quality Assurance

- A. Quality Standard for Doors of Stock Design and Construction: Comply with WDMA I.S.6A, "Industry Standard for Architectural Stile and Rail Doors."
- B. Quality Standard for Doors of Special Design and Construction: Comply with WDMA I.S. 6A, "Industry Standard for Architectural Stile and Rail Doors."

Retain paragraph below if wood products are required to be certified for LEED Credits MR 4.1 and MR 4.2.

- C. Recovered/Recycled Content Certification: Provide doors made from wood products containing recovered and recycled content.

Delete paragraph below if no fire-rated doors.

- D. Fire-Rated Wood Doors and Wood Frames: Doors and Frames that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.
 1. Test Pressure: [Test at atmospheric pressure] [After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill]

Second option below is based on positive-pressure testing requirement in the International Building Code and in the Uniform Building Code. Choose only one option.

Test Pressure: [Test at atmospheric pressure] [After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill].

Delete paragraph below if no glass in doors or sidelites. Decorative glass may not be required to comply with below.

- E. Safety Glass: Provide products complying with testing requirements in 16 CFR 1201, for Category II materials, unless those of Category I are expressly indicated and permitted.

1.4 Project Conditions

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.5 Warranty

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, installer and contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, and have warped (bow, cup or twist) more than ¼" (6.4mm) in a 42-by-84 inch (1067-by-2134 mm) section.

1. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Interior Doors: [One year] [Five years] [Life of Installation]

PART 2 - Products

2.1 Manufacturers

Edit this Article with other Part 2 articles in which manufacturers and products are named. See Division 1 Section "Product Requirements" for an explanation of the terms "Available Manufacturers," "Manufacturers," and "Basis-of-Design Product" and the effect these terms have on "Comparable Product" and "Product Substitution" requirements.

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - a. The Maiman Company; Springfield, MO
 - b. Approved equal

Substitutions allowed only if approved by the architect prior to bid, in accordance with Division 01-General Requirements section 25 13 Product Substitution Procedures.

1) _____

2) _____

2.2 Materials

- A. Assemble doors, including components, with minimum WDMA Type II adhesives.

Retain paragraph below if low-emitting materials are required for LEED Credit EQ 4.4.

- B. Provide doors made with adhesives that do not contain urea-formaldehyde resins.
- C. Provide interior doors made with composite wood products that have urea-formaldehyde emission levels below the published maximums in the ANSI A208.1-latest edition Particleboard standard.

2.3 Stile and Rail Doors of Stock Design and Construction

A. Manufacturers:

1. The Maiman Company (417-862-0681)
2. Approved Equal

Indicate WDMA design groups and panel design designations or a manufacturer's name and model numbers preceded by "Basis of Design Product" on Drawings or in schedules or insert here.

B. Interior Doors:

1. WDMA Grade for Transparent Finish: [**Premium**] [**Custom**].
2. WDMA Grade for Opaque Finish: Custom.

Retain one species in subparagraph below for transparent-finished doors or revise by inserting another species. Delete if no transparent-finished doors. Verify availability with manufacturers.

3. Wood Species and cut for Transparent Finish: [**<Insert species>**] [**Plain sawn**] [**Quarter sawn**]

Retain subparagraph below if opaque-finished doors are required; revise if a particular species is desired and available.

4. Wood Species for Opaque Finish: Manufacturer's standard mill option species and cut for stiles and rails; with panels of same species or wood-based composite materials.
5. Size, Layout and Thickness: As shown on Drawings.

2.4 Stile and Rail Doors of Special Design and Construction

A. Manufacturers

1. The Maiman Company (417-862-0681)
2. Approved Equal

B. Construction, General:

1. Grade of Doors for Transparent Finish: [**Premium**] [**Custom**].
2. Grade of Doors for Opaque Finish: Custom

Options in subparagraph below are examples only. If retaining subparagraph, select one option and possibly revise it, or insert another species and cut.

3. Wood Species and Cut for Transparent Finish: [**<Insert species>**] [**Plain sawn**] [**Quarter sawn**]
4. Wood Species for Opaque Finish: Manufacturer's standard mill option species and cut for stiles and rails; with panels of same species or wood-based composite materials.
5. Size, Layout and Thickness: As shown on Drawings.

C. Door Construction for Transparent Finish - Interior:

1. Stile and Rail Construction: Veneered (minimum 1/16" before sanding), structural engineered core, edgebands same species as face veneer.
2. Raised-Panel Construction: **[Veneered, shaped, wood-based panel product with veneer conforming to raised-panel shape (3-ply veneer)] [Veneered, wood-based panel product with mitered, raised rims made from matching clear lumber (rim-banded)]**
3. Flat-Panel Construction: Veneered, wood-based panel product.

D. Door Construction for Opaque Finish - Interior:

1. Stile and Rail Construction: Veneered (minimum 1/16" before sanding), structural engineered core, edgebands compatible species to face veneer.
2. Raised-Panel Construction: Shaped, medium-density fiberboard.
3. Flat-Panel Construction: **[Veneered with closed grain hardwood veneer on wood-based panel product] [Medium-density fiberboard].**

E. Interior Doors:

Retain one raised-panel thickness in subparagraph below or delete subparagraph if no raised panels.

1. Raised-Panel Thickness: **[Manufacturer's standard, but not less than 1-5/8 inches (41 mm) for 2-1/4 inch (57 mm) thick doors, 1-1/8 inches (29 mm) for 1-3/4 inch (44 mm) thick doors, and 3/4 inches (19 mm) for 1-3/8 inch (35 mm) thick doors] [<insert thickness>]**

Retain one flat-panel thickness in subparagraph below or delete subparagraph if no flat panels.

2. Flat-Panel Thickness: [Manufacturer's standard, but not less than 1-1/8 inches (29 mm) for 2-1/4 inch (57 mm) thick doors, 5/8 inches (16 mm) for 1-3/4 inch (44 mm) thick doors, and 1/4 inch (6 mm) for 1-3/8 inch (35 mm) thick doors][<insert thickness>]

Interior Fire-Rated Doors (20-Minute Rating): Fire-rated doors with 1-3/4-inch- (44-mm-) thick stiles and rails and veneered [flat panels not less than 5/8 inch (16 mm) thick] [raised panels not less than 1-1/8 inches (29 mm) thick], complying with requirements indicated for interior doors.

Delete paragraph above and below if no fire-rated doors. Indicate door rating on Drawings or in schedules.

3. Interior Fire-Rated Doors (45 and 60 Minute Ratings) must be "true" stile and rail, and not "simulated" or "sketch-faced": Fire-rated doors with 1-3/4-inch (44-mm) thick, edged and veneered non-combustible-core stiles and rails and [1-1/8-inch (29-mm) thick, veneered non-combustible core raised panels] [1-1/8-inch (29-mm) thick, veneered non-combustible core flat panels with no sticking], complying with requirements indicated for interior doors.

Interior Fire-Rated Doors (90 Minute Rating) must be "true" stile and rail, and not "simulated" or "sketch-faced": Fire-rated doors with 2-1/4-inch (57-mm) thick, edged and veneered non-combustible core stiles and rails and [1-5/8-inch (41-mm) thick, veneered non-combustible core raised panels] [1-1/8-inch (29-mm) thick, veneered non-combustible core flat panels], complying with requirements indicated for interior doors.

2.5 Fire-Rated Wood Door Frames

- A. Manufacturers
 - 1. The Maiman Company (417-862-0681)
 - 2. Approved Equal
- B. Construction, General:

Options in subparagraph below are examples only. If retaining subparagraph, select one option and possibly revise it, or insert another species and cut.

- 1. Wood Species and Cut for Transparent Finish: [**<Insert species>**] [**Plain sawn**] [**Quarter sawn**]
- 2. Wood Species for Opaque Finish: Manufacturer's standard mill option paint grade species.
- 3. Hourly fire rating: As shown on Drawings.
- 4. Jamb depths: As shown on Drawings.

2.6 Fabrication

- A. Fabricate stile and rail wood doors in sizes indicated for Project site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting. [**Comply with requirements in NFPA 80 for fire-rated doors.**]
- C. Factory machine doors for hardware that is not surface applied.
- D. Glazed Openings: Glaze doors at factory with glass of type and thickness indicated, complying with Division 8 Section "Glazing." Glaze doors using solid wood moldings for non fire-rated and 20 minute fire-rated. For 45, 60 and 90 minute fire-rated doors, glaze using [**veneered metal for transparent finish**] [**primed metal for opaque finish**].

Retain paragraph above or first paragraph below. Usually retain above for stock doors and for custom doors made by door manufacturers.

- E. Glazed Openings: Trim openings indicated for glazing with solid wood moldings (non fire-rated and 20 minute fire-rated), with one side removable. For 45, 60 and 90-minute fire-rated glazed openings, provide [**veneered metal for transparent finish**] [**primed metal for opaque finish**] for all glazed openings
- F. Transom and Side Panels: Fabricate panels to match adjoining doors in materials, finish, and quality of construction.

2.7 Shop Priming

Delete this Article if factory-finished doors are required. Factory fitting and machining are required to minimize damage to shop-primed doors. Retain one or both paragraphs below.

- A. Doors for Opaque Finish: Shop apply one coat of wood primer specified in Division 9 Section "Painting" to faces, edges and tops and bottoms of doors.

2.8 Factory Finishing

Delete this Article if factory finishing is not required. Factory finishing can be used to help comply with LEED Credit EQ 4.2, which limits VOC content of paints and coatings used within building.

- A. Finish wood doors at factory [**that are indicated to receive transparent finish. Field finish wood doors indicated to receive opaque finish**].
- B. Grade: [**Premium**] [**Custom**].
- C. Interior Finish: Manufacturer's standard interior finish with performance requirements comparable to WDMA [**TR-2 catalyzed lacquer**] [**TR-6 catalyzed polyurethane for LEED Credit EQ 4.2**]
- D. Staining: [**Match Architect's sample**]

PART 3 - Execution

3.1 Installation

- A. Install wood doors to comply with manufacturer's written instructions and with referenced quality standard, and as indicated.

Delete subparagraph below if no fire-rated wood doors.

1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.

Delete first paragraph and subparagraphs below if all doors are factory fitted.

- B. Job-Fitted 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 as permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
 1. 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. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold.

Delete first subparagraph below if no fire-rated wood doors or if factory fitted.

- a. Comply with NFPA 80 for fire-rated doors.
2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.

Subparagraph above is standard bevel. Delete subparagraph below if no fire-rated doors or if factory fitted. Fire-rated doors with more than 20-minute rating can only be trimmed to a limited extent because of narrow wood edges of stiles and rails.

3. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) on lock edge; trim stiles and rails only to extent permitted by labeling agency.

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

