

**SECTION 08 1433**  
**STILE AND RAIL WOOD DOORS**

**NOTE: THIS SECTION USES THE TERM "ARCHITECT." CHANGE THIS TERM TO IDENTIFY THE DESIGN PROFESSIONAL AS DEFINED IN THE AGREEMENT OR GENERAL CONDITIONS OF THE CONTRACT.**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

***Edit below to only include applicable work results for this Section.***

- A. Interior wood doors, stile and rail design.
- B. Matching wood panels.
- C. Wood door frames.
- D. [Factory] [Shop] finishing.

1.02 RELATED REQUIREMENTS

***Inclusion of this Article and listings below is optional; edit listings to include only Sections that are cited in the text of this Section. Verify that these Section numbers and titles are consistent with Sections actually included in the Project specifications.***

- A. Section 06 2000 - Finish Carpentry: Wood door frames.
- B. Section 08 1213 - Hollow Metal Frames.
- C. Section 08 1416 - Flush Wood Doors.
- D. Section 08 7100 - Door Hardware.
- E. Section 08 8000 - Glazing.
- F. Section 09 9123 - Interior Painting: Field finishing doors.

1.03 REFERENCE STANDARDS

***Inclusion of this Article and listings below is optional; edit listings to include only reference standards that are cited in the text of this Section.***

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- B. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- C. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
- D. ICC (IBC) - International Building Code.
- E. ITS (DIR) - Directory of Listed Products.
- F. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; National Fire Protection Association.
- G. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives.
- H. UL (DIR) - Online Certifications Directory.
- I. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.
- J. UL 1784 - Standard for Air Leakage Tests of Door Assemblies and Other Opening Protectives.
- K. WDMA I.S.6A - Interior Architectural Wood Stile and Rail Doors; Window & Door Manufacturers Association; 2013. (ANSI/WDMA I.S.6A)

#### 1.04 ADMINISTRATIVE REQUIREMENTS

***Edit below to suit applicable requirements for this Section.***

- A. Coordination:
  - 1. Coordinate the work with door opening construction.
  - 2. Coordinate with [door frame and] door hardware installation.
  - 3. Coordinate installation of glazing.

#### 1.05 SUBMITTALS

***Edit below to suit applicable requirements for this Section.***

- A. Product Data: Indicate stile and rail core materials and construction[; veneer species, type and characteristics].
- B. Shop Drawings: Illustrate applicable door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria[, and cutouts for glazing and other openings].
- C. Samples: Submit two samples of door construction, minimum 12 by 12 inch in size, cut from typical top corner of door.
- D. Samples: Submit two samples of door veneer, minimum 12 by 12 inch in size, illustrating wood grain, stain color, and sheen.
- E. Manufacturer's Installation Instructions: Indicate special installation instructions.
- F. Warranty; executed in Owner's name.

#### 1.06 [LEED] [SUSTAINABLE DESIGN] SUBMITTALS

***Retain this article for LEED or other sustainable design projects; edit to suit project requirements.***

- A. Comply with applicable product requirements and volatile organic compound (VOC) content restrictions specified in Division 01.
- B. Report: Submit data for wood products made from sustainably harvested wood and regionally-sourced wood. Include statement indicating costs for each different wood material made of sustainably harvested wood[ and regionally-sourced wood].
  - 1. Provide documentation for composite wood products indicating that bonding agents and adhesives used contain no added urea formaldehyde resins.
  - 2. Provide documentation of VOC content of all interior adhesives actually used.

#### 1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with minimum 5 years of documented experience.
  - 1. Accredited participant in the specified certification program prior to commencement of fabrication and throughout duration of the project.
- B. Quality Certification: Comply with WDMA I.S.6A quality certification requirements for completed work.
  - 1. Provide labels or certificates indicating that the work complies with specified requirements.
  - 2. Provide labels on each product when required by certification program.
  - 3. Upon completion of installation provide certificate certifying that installations and products meet specified requirements.
  - 4. Replace, repair, or rework all work for which certification is refused.

## 1.08 REGULATORY REQUIREMENTS

***Retain this article if applicable; edit to suit project requirements.***

- A. Conform to applicable Building Code for fire rated assemblies.
  - 1. Fire rated assembly construction to conform to UL 10C, unless otherwise required by applicable Building Code.
  - 2. Installed Frame and Door Assemblies: Comply with NFPA 80 for fire rated class indicated.
  - 3. Installed Smoke Control Frame and Door Assemblies: Comply with NFPA 105.

## 1.09 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver, and store doors in accordance with WDMA quality standard specified.
- B. 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 remainder of construction period.
- C. Prior to installation, protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might adversely affect door finish. Seal top and bottom edges if stored more than one week. Break seal on packaging on the site to permit ventilation.

## 1.10 WARRANTY

***Edit below to suit applicable requirements for this Section. 5 year warranty is standard. Life of installation warranty requires extra cost.***

- A. Interior Doors: Provide manufacturer's warranty for [5 years] [the life of the installation] from Date of Substantial Completion.
- B. 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 which have warped (bow, cup or twist) more than 1/4 inch (6.4mm) over any 42 by 84 inch (1067 by 2134 mm) section of door face.
  - 1. Include coverage for delamination of veneer and telegraphing core construction.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Basis of Design Manufacturer:
  - 1. Karona by Jeld-Wen: [www.karonadoor.com](http://www.karonadoor.com).
    - a. Door Style: [Custom as indicated] [*Specify Karona's door model number (ie., K3030 - 3 Raised Panels)*].
  - 2. Substitutions: See Division 01 for substitution procedures, if permitted.
- B. Other Acceptable Manufacturers:
  - 1. Karona, Inc.: [www.karonadoor.com](http://www.karonadoor.com).
  - 2. Maiman Company: [www.maiman.com](http://www.maiman.com).
  - 3. Marshfield DoorSystems, Inc.: [www.marshfielddoors.com](http://www.marshfielddoors.com).
  - 4. Oshkosh Door Company: [www.oshkoshdoor.com](http://www.oshkoshdoor.com).
  - 5. Substitutions: See Division 01 for substitution procedures, if permitted.
- C. Obtain all doors from a single manufacturer to assure uniformity of appearance and construction.

### 2.02 WOOD-BASED DOOR COMPONENTS

***Edit requirements below, which generally apply to projects pursuing LEED or other sustainable design certification.***

- A. Provide all core, lumber, and veneer materials with chain of custody certification provided by the Forest Stewardship Council (FSC®).
- B. Provide all core and veneer materials that are defined as regionally sourced according to applicable sustainable design certification requirements.

- C. Wood doors fabricated from old growth timber are not permitted.
- D. Provide doors manufactured with composite wood materials and components using bonding agents that contain no added urea formaldehyde resins, and that otherwise comply with specified VOC content restrictions.

#### 2.03 STILE AND RAIL DOORS

***Edit below to suit applicable requirements for this Section.***

- A. Quality Level: [Custom] [Premium] Grade, [Standard] [Heavy] [Extra Heavy] Duty performance, in accordance with WDMA I.S.6A.
- B. Interior Doors: [1-3/8 inches] [1-3/4 inches] thick unless otherwise indicated; [solid lumber] [veneer and lumber stile and rail] construction; [mortise and tenon] [dowel] joints.

***Select one or both of the following as applicable.***

- C. Door Finishing: Wood veneer facing for field transparent finish at scheduled locations.
- D. Door Finishing: Wood veneer facing for field opaque finish at scheduled locations.

#### 2.04 DOORS [ AND PANELS]

***Edit this article to suit project requirements. Rift cut may only allow limited species selections; verify with manufacturer.***

- A. Veneer Facing for Transparent Finish: [ (Insert desired species)], veneer grade in accordance with quality standard indicated, [plain sliced (flat cut)] [quarter cut] [rift cut], with [ book match] [slip match] [random matched (mis-matched)] [plank match] between leaves of veneer, [ running match] [balance match] [center balance match] of spliced veneer leaves assembled on door or panel faces.
  - 1. [Transom Panels: [Continuous match to door] [End match to door].]
  - 2. [Pairs: Pair match each pair; set match pairs that are within 10 feet of each other when doors are closed.]
- B. Facing Materials for Opaque Finishes: Manufacturer's standard mill option species and cut for stiles and rails; panels of same species or wood-based composite materials.
- C. Adhesive: WDMA Type II - Water Resistant.

#### 2.05 ACCESSORIES

***Edit below to suit applicable requirements for this Section; retain only applicable paragraphs and sub-paragraphs.***

- A. Glazed Openings:
    - 1. Heat-Strengthened and Fully Tempered Glass: ASTM C1048.
    - 2. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
    - 3. Laminated Safety Glass: Comply with 16 CFR 1201 test requirements for Category II.
    - 4. Fire-Protection-Rated Glass: Safety Certification, 16 CFR 1201, Category II.
    - 5. Glazing: Sealed insulating units, 1 inch thick, made of 1/4 inch glass.
    - 6. Glazing: Single vision units, 1/4 inch glass.
    - 7. Tint: [Clear] [Frosted] [Gray] [(Insert description)].
    - 8. Coating: Low-E type, on #2 surface.
- OR-***
- B. Glazing: As specified in Section 08 8000.
  - C. Panel or Glass Retention Molding: Wood of same species as door facing, manufacturer's standard molding profile and style according to specified door style, mitered corners; prepared for countersink style tamper proof screws].
  - D. Louvers: Wood, of same species as door facing; style and configuration as indicated on Drawings.

## 2.06 DOOR CONSTRUCTION

**Edit below to suit applicable requirements for this Section; retain only applicable paragraphs and sub-paragraphs.**

- A. Vertical Exposed Edge of Stiles: Of same species as veneer facing.
    - 1. Fit door edge trim to edge of stiles after applying veneer facing.
    - 2. Bond edge banding to cores.
  - B. Door Fabrication:
    - 1. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware.
    - 2. Fabricate stile and rail wood doors in sizes indicated for Project site fitting.  
**Retain paragraph above or paragraph below. Usually retain above for stock doors and for custom doors made by door manufacturers.**
    - 3. Factory fit doors to suit frame opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting and edge clearances.
    - 4. Transom and Side Panels: Fabricate panels to match adjoining doors in materials, finish, and quality of construction.
  - C. Glazed Openings: Factory glaze doors with glass of type and thickness specified.
    - 1. Non-Rated and 20 Minute Rated Doors: Solid wood moldings.
    - 2. 45 and 60 minute Rated Doors: Compression glazed construction with applied wood stops.
  - D. Exterior Doors:
    - 1. Provide aluminum flashing at the top and bottom rail for full thickness and width of door.
    - 2. Cut and configure door edges to receive recessed weather stripping devices. Provide edge clearances in accordance with referenced quality standards.
  - E. Fire Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces; with core blocking as required to provide adequate anchorage of hardware without through-bolting.
- OR-**
- F. Fire Rated Doors: Tested to ratings indicated on Drawings in accordance with ICC (IBC) - Positive Pressure; listed in UL (DIR) or ITS (DIR) and without any visible seals when door is open.
  - G. Smoke and Draft Control Doors: In addition to required fire rating, provide stile and rail door assemblies tested in accordance with UL 1784 with maximum air leakage of 3.0 cfm per sq. ft. of door opening at 0.10 inch w.g. pressure at both ambient and elevated temperatures for "S" label; if necessary, provide additional gasketing or edge sealing.
- OR-**
- H. Smoke and Draft Control Doors: In addition to required fire rating, provide stile and rail door assemblies in compliance with WDMA I.S.6A requirements for "S" label; if necessary, provide additional gasketing or edge sealing.

## 2.07 FACTORY FINISHING

**Edit below to suit applicable requirements for this Section; retain only applicable paragraphs and sub-paragraphs.**

- A. Finish work in accordance with WDMA I.S.6A for Grade specified and as follows:
  - 1. Transparent:
    - a. Manufacturers standard, in compliance with performance duty level indicated.
    - b. Stain: As selected by Architect.
    - c. Sheen: [Satin] [Semi-gloss].
  - 2. Opaque:
    - a. Manufacturers standard, in compliance with performance duty level indicated.
    - b. Color: As selected by Architect.
    - c. Sheen: [Satin] [Semi-gloss].

- B. Factory finish doors in accordance with approved sample.
- C. Exterior Doors: Seal door top edge with[ color] sealer to match door facing.

### **PART 3 EXECUTION**

***EDIT THIS ENTIRE PART 3 TO SUIT PROJECT REQUIREMENTS.***

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable to door manufacturer.
- C. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

#### **3.02 INSTALLATION**

***Edit below to suit applicable requirements for this Section.***

- A. Install doors in accordance with manufacturer's instructions and specified quality standards.
  - 1. Install fire-rated doors in accordance with NFPA 80, Intertek/Warnock Hersey (WHI), and UL requirements as applicable.
  - 2. Install smoke and draft control doors in accordance with NFPA 105 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Field-Finished Doors: Trimming to fit is acceptable, subject to approval of door manufacturer.
- D. Adjust width of non-rated doors by cutting equally on both jamb edges.
- E. Trim door height by cutting bottom edges to a maximum of 3/4 inch.
- F. Trim fire-rated doors in strict compliance with fire rating limitations.
- G. Machine cut and prepare doors[ and frames] for specified hardware.

#### **3.03 TOLERANCES**

- A. Conform to specified quality standard for fit, clearance, and joinery tolerances.
- B. Maximum Width Distortion (Cup): 1/4 inch measured with straight edge or taut string, edge to edge, over any 42 by 84 inch (1067 by 2134 mm) section of door face.

#### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

#### **3.05 SCHEDULE**

- A. Refer to Door and Frame Schedule on the Drawings.

**END OF SECTION**