

## SECTION 08 14 16 - FLUSH 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 doors with wood-veneer faces.
- B. Related Sections:
  - 1. Section 08 80 00 "Glazing" for glass view panels in flush wood doors.
  - 2. Section 09 91 13 "Exterior Painting"
  - 3. Section 09 91 23 "Interior Painting"
  - 4. Section 09 93 00 "Staining and Transparent Finishing" for field finishing doors.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of door indicated. Include details of core and edge construction and trim for openings.
- B. 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 fire-protection ratings for fire-rated doors.
- C. Samples for Verification:
  - 1. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
    - a. Provide samples for each species of veneer and solid lumber required.
  - 2. Frames for light openings, 6 inches long, for each material, type, and finish required.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.
- C. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated." WDMA I.S.1-A, "Architectural Wood Flush Doors."
  - 1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
  - 2. Provide WI-Certified Compliance Certificate indicating that doors comply with requirements of grades specified.
  - 3. Provide WI-Certified Compliance Certificate for installation.
- D. 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**] [**as close to neutral pressure as possible**] according to [**NFPA 252**] [**UBC Standard 7-2**] [**or**] [**UL 10B**] [**UL 10C**].
  - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
  - 2. Temperature-Rise Limit: [**Where indicated**] [**At vertical exit enclosures and exit passageways**], provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
- E. Preinstallation Conference: Conduct conference at [**Project site**] <Insert location>.

#### 1.6 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] [cardboard cartons and wrap bundles of doors in plastic sheeting].
- C. Mark each door on[ **top and**] bottom rail with opening number used on Shop Drawings.

## 1.7 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.
- B. 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 temperature between 60 and 90 deg F and relative humidity between **[25 and 55]** **[43 and 70]** **[17 and 50]** **<Insert humidity range>** percent during the remainder of the construction period.

## 1.8 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 shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  - 3. Warranty Period for Solid-Core Exterior Doors: **[Two]** **[Five]** **<Insert number>** years from date of Substantial Completion.
  - 4. Warranty Period for Solid-Core Interior Doors: Life of installation.
  - 5. Warranty Period for Hollow-Core Interior Doors: **[One]** **[Two]** **<Insert number>** year(s) 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. Eggers Industries
  - 2. [Poncraft Door Company](#).
  - 3. [VT Industries Inc.](#)
  - 4. **Substitutions:** See Section 01 25 00 - Substitution Procedures.

## 2.2 DOOR CONSTRUCTION, GENERAL

- A. Certified Wood: Fabricate doors with [**cores**] [**veneers**] [**not less than 70 percent of wood products**] [**all wood products**] produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- B. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.
- C. Low-Emitting Materials: Fabricate doors with [**adhesives**] [**and**] [**composite wood products**] that comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. WDMA I.S.1-A Performance Grade: [Extra Heavy Duty] [Heavy Duty] [Standard Duty] [As indicated].
- E. WDMA I.S.1-A Performance Grade:
  - 1. Heavy Duty unless otherwise indicated.
  - 2. Extra Heavy Duty: [**Classrooms**] [**public toilets**] [**janitor's closets**] [**assembly spaces**] [**exits**] [**patient rooms**] <Insert locations> [**and where indicated**].
  - 3. Standard Duty: [**Closets (not including janitor's closets)**] [**private toilets**] <Insert locations> [**and where indicated**].
- 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. 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.
  - 2. 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.
  - 3. Pairs: Provide formed-steel edges and astragals [**with intumescent seals**].
    - a. Finish steel edges and astragals with baked enamel [**same color as doors**].
    - b. Finish steel edges and astragals to match door hardware (locksets or exit devices).
- H. 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 follows:
  - a. 5-inch top-rail blocking.
  - b. 5-inch bottom-rail blocking, in doors indicated to have protection plates.
  - c. 5-inch midrail blocking, in doors indicated to have armor plates.
  - d. 5-inch midrail blocking, in doors indicated to have exit devices.
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. Exterior Solid-Core Doors <Insert drawing designation>:

1. Grade: **[Premium, with Grade AA faces]** **[Premium, with Grade A faces]** **[Custom (Grade A faces)]** **[Economy (Grade B faces)]**.
2. Species: **[Anigre]** **[Select white ash]** **[Figured select white ash]** **[Select white birch]** **[Cherry]** **[Select red gum]** **[Figured select red gum]** **[Select white maple]** **[Red oak]** **[Persimmon]** **[Sapele]** **[Sycamore]** **[Walnut]** **[White oak]** **[Ucuuba (Viola Duckei)]** **[Cupiuba (Goupia glabra)]** <Insert species>.
3. Cut: **[Rotary cut]** **[Plain sliced (flat sliced)]** **[Quarter sliced]** **[Rift cut]**.
4. Match between Veneer Leaves: **[Book]** **[Slip]** **[Pleasing]** match.
5. Assembly of Veneer Leaves on Door Faces: **[Center-balance]** **[Balance]** **[Running]** match.
6. Pair and Set Match: Provide for doors hung in same opening **[or separated only by mullions]**.
7. Exposed Vertical **[and Top]** Edges: **[Same species as faces or a compatible species]** **[Same species as faces]** **[Applied wood-veneer edges of same species as faces and covering edges of faces]** **[Applied wood edges of same species as faces and covering edges of crossbands]**.
8. Core: **[Particleboard]** **[Glued wood stave]** **[Structural composite lumber]** **[Either glued wood stave or structural composite lumber]**.
9. Construction: **[Five]** **[Five or seven]** plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering. **[Faces are bonded to core using a hot press.]**
10. Adhesives: Type I per WDMA TM-6.
11. WDMA I.S.1-A Performance Grade: **[Extra Heavy]** **[Heavy]** Duty.

#### B. Interior Solid-Core Doors <Insert drawing designation>:

1. Grade: **[Premium, with Grade AA faces]** **[Premium, with Grade A faces]** **[Custom (Grade A faces)]** **[Economy (Grade B faces)]**.
2. Species: **[Anigre]** **[Select white ash]** **[Figured select white ash]** **[Select white birch]** **[Cherry]** **[Select red gum]** **[Figured select red gum]** **[Select white maple]** **[Red oak]**

- [Persimmon] [Sapele] [Sycamore] [Walnut] [White oak] [Ucuuba (Viola Duckei)] [Cupiuba (Goupia glabra)] <Insert species>.
3. Cut: [Rotary cut] [Plain sliced (flat sliced)] [Quarter sliced] [Rift cut].
  4. Match between Veneer Leaves: [Book] [Slip] [Pleasing] match.
  5. Assembly of Veneer Leaves on Door Faces: [Center-balance] [Balance] [Running] match.
  6. Pair and Set Match: Provide for doors hung in same opening[ or separated only by mullions].
  7. Room Match: Match door faces within each separate room or area of building. Corridor-door faces do not need to match where they are separated by [10 feet] [20 feet] <Insert distance> or more.
  8. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
  9. Transom Match: [Continuous match] [End match] [As indicated].
  10. Blueprint Match: Where indicated, provide doors with faces produced from same flitches as adjacent wood paneling and arranged to provide blueprint match with wood paneling. Comply with requirements in [Section 06 40 23 "Interior Architectural Woodwork."] [Section 06 42 00 "Wood Paneling."]
  11. Exposed Vertical[ and Top] Edges: [Same species as faces or a compatible species] [Same species as faces] [Applied wood-veneer edges of same species as faces and covering edges of faces] [Applied wood edges of same species as faces and covering edges of crossbands].
  12. Core: [Particleboard] [Glued wood stave] [Structural composite lumber] [Either glued wood stave or structural composite lumber] [Either glued or nonglued wood stave or structural composite lumber].
  13. Construction: [Five] [Five or seven] plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.[ Faces are bonded to core using a hot press.]
  14. Construction: Seven plies, either bonded or nonbonded construction.
  15. WDMA I.S.1-A Performance Grade: [Extra Heavy Duty] [Heavy Duty] [Standard Duty] [As indicated].

## 2.4 DOORS FOR OPAQUE FINISH

### A. Exterior Solid-Core Doors <Insert drawing designation>:

1. Grade: [Premium] [Custom] [Economy].
2. Faces: [Medium-density overlay] [Any closed-grain hardwood of mill option].
  - a. Apply medium-density overlay 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: [Particleboard] [Glued wood stave] [Structural composite lumber] [Either glued wood stave or structural composite lumber].

5. Construction: [**Five**] [**Five or seven**] plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.[ **Faces are bonded to core using a hot press.**]
6. Adhesives: Type I per WDMA TM-6.
7. WDMA I.S.1-A Performance Grade: [**Extra Heavy**] [**Heavy**] Duty.

B. Interior Solid-Core Doors <Insert drawing designation>:

1. Grade: [**Premium**] [**Custom**] [**Economy**].
2. Faces: [**Medium-density overlay**] [**Any closed-grain hardwood of mill option**] [**Hardboard or MDF**].
  - a. Apply medium-density overlay to [**standard-thickness, closed-grain, hardwood face veneers**] [**or**] [**directly to high-density hardboard crossbands**].
  - b. Hardboard Faces: AHA A135.4, Class 1 (tempered) or Class 2 (standard).
  - c. MDF Faces: ANSI A208.2, Grade 150 or 160.
3. Exposed Vertical[ **and Top**] Edges: Any closed-grain hardwood.
4. Core: [**Particleboard**] [**Glued wood stave**] [**Structural composite lumber**] [**Either glued wood stave or structural composite lumber**] [**Either glued or nonglued wood stave or structural composite lumber**].
5. Construction: [**Three**] [**Five**] [**Five or seven**] plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering.[ **Faces are bonded to core using a hot press.**]
6. Construction: [**Three**] [**Seven**] plies, either bonded or nonbonded construction.
7. WDMA I.S.1-A Performance Grade: [**Extra Heavy Duty**] [**Heavy Duty**] [**Standard Duty**] [**As indicated**].

## 2.5 LOUVERS

- A. Wood Louvers: Door manufacturer's standard solid-wood louvers unless otherwise indicated.
  1. Wood Species: [**Same species as door faces**] [**Species compatible with door faces**] [**Any closed-grain hardwood**].
- B. 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: [**Flush rectangular beads**] [**Recessed tapered beads**] [**Recessed tapered beads with exposed banding**] [**Lipped tapered beads**] [**Manufacturer's standard shape**].
  3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
- C. 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.

- D. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch- thick, cold-rolled steel sheet; factory primed for paint finish ; and approved for use in doors of fire-protection rating indicated.

## 2.6 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. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.
  - 1. Fabricate door and transom panels with full-width, solid-lumber, rabbeted, meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.
- D. Openings: Cut and trim openings through doors in factory.
  - 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 08 80 00 "Glazing."
- E. Exterior Doors: Factory treat exterior doors with water repellent after fabrication has been completed but before [**shop priming**] [**factory finishing**].

## 2.7 SHOP PRIMING

- A. Doors for Opaque Finish: Shop prime doors with one coat of wood primer specified in Section 09 91 13 "Exterior Painting." Section 09 91 23 "Interior Painting." Seal all four edges, edges of cutouts, and mortises with primer.
- B. Doors for Transparent Finish: Shop prime doors with stain (if required), other required pretreatments, and first coat of finish as specified in Section 09 93 00 "Staining and Transparent Finishing." Seal all four edges, edges of cutouts, and mortises with first coat of finish.

## 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 Section 08 71 00 "Door Hardware" and Section 08 71 11 "Door Hardware (Descriptive Specification)."
- 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: 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: 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 08 14 16