

SECTION 081416

FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Solid-core doors with wood-veneer faces.
  - 2. Factory finishing for wood doors to receive transparent finish.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
  - 4. Shop-installed glass and glazing for the work of this Section.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 042000 - UNIT MASONRY for building anchors into and grouting steel frames in masonry construction.
  - 2. Section 061000 - ROUGH CARPENTRY for framing.
  - 3. Section 087100 - DOOR HARDWARE for hardware for wood doors.
  - 4. Section 099000 - PAINTING AND COATING for field finishing wood doors.

1.3 SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings.
  - 1. Include factory-finishing specifications.
- B. LEED Submittals:

1. Credit MR 7: Chain-of-custody certificates signed by manufacturers certifying that products specified to be made from certified wood comply with forest certification requirements. Include evidence that mill is certified for chain-of-custody by an FSC-accredited certification body.
    - a. Include statement indicating costs for each certified wood product.
    - b. Submit vendor invoices for each wood-based component, including the following information: Identify FSC products on a line-item basis as "FSC Pure," "FSC Mixed Credit," or "FSC Mixed \_\_\_%"; the value of each line item; and the vendor's chain-of-custody (COC) number.
  2. Credit IEQ 4.4: Manufacturer's product data for each composite wood product and adhesive used indicating that the product contains no added urea formaldehyde.
- C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door and matching transom; 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 and transoms to be factory finished and finish requirements.
  5. Indicate fire ratings for fire doors.
- D. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
  2. Frames for light openings, 6 inches long, for each material, type, and finish required.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors and transoms through one source from a single manufacturer.
- B. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing at positive pressure according to NFPA 252 or 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: 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.
- C. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

- D. Forest Certification: Provide wood doors produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC's "Principles and Criteria for Forest Stewardship."
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

#### 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 top and bottom rail with opening number used on Shop Drawings.

#### 1.6 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 will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

#### 1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors and transoms that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
  - 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
  - 2. Warranty shall include hardware installation and replacement of glass and glazing.
  - 3. Warranty shall be in effect during the following period of time from date of Substantial Completion:
    - a. Solid-Core Interior Doors: Life of installation.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Flush Wood Doors:
    - a. Algoma Hardwoods Inc.

- b. Eggers Industries; Architectural Door Division.
- c. Marshfield DoorSystems.
- d. Oshkosh Door Company
- e. VT Industries Inc.

## 2.2 DOOR AND TRANSOM CONSTRUCTION, GENERAL

- A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that contain no added urea formaldehyde.
- B. Doors for Transparent Finish:
  - 1. Grade: AWI Premium, with AWI Grade A faces.
  - 2. Species and Cut: Match existing.
  - 3. Match between Veneer Leaves: Match existing..
  - 4. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
  - 5. Stiles: Manufacturer's standard laminated stile construction with exposed surface the same species as faces.

## 2.3 SOLID-CORE DOORS

- A. Cores: Comply with the following requirements:
  - 1. Particle Core: ANSI A 208.1, Grade 1-LD-2, contributes to MR 4 and MR7.
  - 2. Structural Composite Lumber Core: Timberstrand LSL, contributes to IEQ 4.4 and MR 7.
  - 3. Provide doors with structural composite lumber cores instead of particleboard cores at locations where exit devices are indicated or where light or louver cutouts exceed 40% of the door area.
- B. Interior Veneer-Faced Doors:
  - 1. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering.
- C. Fire-Rated Doors:
  - 1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard fire-resistant composite core construction as needed to provide fire rating indicated.
    - a. Fire Resistant Composite Core, with no added urea formaldehyde crossbands per IEQ 4.4.
  - 2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware.
  - 3. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

4. Pairs: Provide fire-rated pairs with fire-retardant stiles matching face veneer that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals.
5. Positive Pressure Fire Doors - Category A - with intumescent concealed in the door edges..

## 2.4 GLASS

- A. Heat-Treated Float Glass for Non-Rated Doors: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
- B. Fire-Protection-Rated Tempered Glass for Rated Doors: 1/4-inch-thick, fire-protection-rated tempered glass, complying with testing requirements in 16 CFR 1201 for Category II materials.
  1. Fire-Protection-Rated Glazing: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 for door assemblies.
  2. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F, and the fire-resistance rating in minutes.

## 2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
  1. Comply with clearance requirements of referenced quality standard for fitting. 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 measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining. Drill pilot holes for screws for butt hinges and lock fronts at the factory.
  2. Metal Astragals: Premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors to receive concealed vertical rod exit devices as required by manufacturer's label listings.
- 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 meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal doorframes.

- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
  - 1. Light Openings: Trim openings with moldings of material and profile indicated.
  - 2. Louvers: Factory install louvers in prepared openings.
- E. Glazed Openings: Glaze doors at factory with glass of type and thickness indicated. Install glass using manufacturer's standard elastomeric glazing sealant complying with ASTM C 920. Secure glass in place with removable wood stops.

## 2.6 FACTORY FINISHING

- A. General: Comply with AWI/AWMAC/WI's "Architectural Woodwork Standards" for factory finishing.
- B. Finish doors at factory that are indicated to receive transparent finish. Factory prime and prepare for field finish doors indicated to receive opaque finish.
- C. Transparent Finish:
  - 1. Grade: Premium.
  - 2. Finish: Manufacturer's standard UV cured polyurethane finish with performance comparable to AWS System 11. Provide two finish coats.
  - 3. Staining: [As selected by Designer from manufacturer's full range.] [No stain required.] [To match Designer's sample.]
  - 4. Effect: Semifilled finish.
  - 5. Sheen: Satin.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed doorframes 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 087100 - DOOR HARDWARE.
- B. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.

1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
2. Install smoke- and draft-control doors according to NFPA 105.

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

### 3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Protection: Provide temporary protection to ensure work being without damage or deterioration at time of final acceptance. Remove protections and reclean as necessary immediately before final acceptance.
- C. Finished Doors: Replace doors that are damaged or 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