

SECTION 081420
PLASTIC LAMINATE FACED DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Solid flush high pressure decorative laminate veneer doors:
 - 1. Fire rated.
 - 2. Non-rated.
 - 3. Flush design.
 - 4. Glazed design.
 - 5. Factory premachined.
 - 6. Lead lined.

1.02 RELATED SECTIONS

- A. Section 087100 - Door Hardware .
- B. Section 088000 - Glazing.

1.03 REFERENCES

- A. ANSI A208.1 - American National Standard for Particleboard; 2022.
- B. ASTM D5456 - Standard Specification for Evaluation of Structural Composite Lumber Products; 2021, with Editorial Revision.
- C. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.
- D. ASTM E413 - Classification for Rating Sound Insulation; 2022.
- E. AWI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2016).
- F. ITS (DIR) - Directory of Listed Products; Current Edition.
- G. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.
- H. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
- I. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.
- J. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- K. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; 2021, with Errata (2022).
- L. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers, and warranty.
- C. Shop Drawings: Prepared specifically for this project indicating location and size of each door, decorative laminate veneer, color, pattern, or wood grain, and number, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for glass and glazing, and other pertinent data.
 - 1. Indicate compliance with positive pressure.
 - 2. For factory-premachined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to lite and louver openings.
 - 3. Use same reference numbers for openings and details as contract drawings.
- D. Samples:
 - 1. Provide decorative laminate manufacturer's sample for satisfaction of color, pattern, or wood grain, for Architect's approval.
 - 2. For decorative laminate doors, each color, finish, and pattern or wood grain are required.

3. Manufacturer's Instructions: Submit instructions regarding care of door during shipping, unloading, storage, and preparation for hanging.

1.05 QUALITY ASSURANCE

- A. Non-Fire Rated Wood Doors: Solid core premium or custom grade architectural flush decorative laminate veneer doors; comply with the following:
 1. AWI Quality Standard: "Architectural Woodwork Quality Standards" including Section 01300 "Architectural Flush Doors," of Architectural Woodwork Institute (AWI) for grade of door, core construction, and other requirements exceeding those of NWWDA quality standard.
- B. Fire Rated Wood Doors: Provide fire rated wood doors which are identical in material and construction to units tested in door and frame assemblies per NFPA 252, and conform to UL 10C positive pressure testing, and which are labeled and listed for ratings indicated by UL.
 1. Oversize Fire Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's certificate stating that doors conform to all standard construction requirements of tested and labeled fire door assemblies except as to size.
 2. Temperature Rise Rating: At stairwell enclosures, provide doors that have a temperature rise rating of 250 deg F. maximum in 30 minutes of fire enclosure.
 3. Rated doors compliance to ANSI A208.1 Category A positive pressure.
 4. Notify Architect, prior to fabrication, if fire doors indicated cannot qualify for labeling because of design, size, hardware, or other reason.
 5. If material specified as fire rated and labeled can be obtained from one approved source, no consideration will be given to those manufacturers who are not authorized to fabricate and label items.
 6. Where fire rated classifications are shown or scheduled for wood door assemblies, doors shall be installed in compliance with the requirements of "NFPA 80 Standard for Fire Doors and Other Opening." Attach labels permanently at eye level to hinge stile.
- C. Single Source Responsibility: Provide doors from a single manufacturer to ensure uniformity in quality of appearance, face veneer, finish, and construction.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Handle doors at the site in accordance with AWI Section 1300-G-23 and Section G-20 "Care and Installation at Jobsite" of NWWDA ISI-JOBA, as well as with manufacturer's instructions.
- B. Delivery:
 1. Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period and after installation to comply with the following requirements applicable to project's geographical location:
 - a. Reference 7th Edition of AWI quality standard including Section 100-S-11 "Relative Humidity and Moisture Content."
 2. Individually protect doors to prevent damage.
 3. Deliver no doors to the building until wet construction operations are completed and dry, and weatherproof storage space is available.
 4. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Storage:
 1. Store doors in a clear dry ventilated space having controlled temperature and relative humidity range between 30 and 60 percent. Stack doors flat and off the floor, supported to prevent warpage.
 2. Avoid extreme heat, cold, dryness, or humidity by storing doors in a closed-in building with operational HVAC system.
 3. Store flat over level surface above floor on wood blocking.
- D. Handling:
 1. Do not walk on or place other materials on top of stacked doors.
 2. Handle doors with clean gloves. Lift or carry, do not drag across one another.
 3. Cover doors to keep clean.

4. At time of installation the protective door wrapping is to remain in place, for door protection, until all work by other trades is completed and final inspection is finished.
5. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door frames and hardware.

1.07 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings, prepared by the manufacturer before proceeding with factory machining.

1.08 COORDINATION

- A. Contractor shall be responsible for coordinating and obtaining necessary information from Hardware and Frame manufacturers to provide door supplier with approved hardware and frame schedules with templates 60 days prior to desired delivery date of doors.

1.09 WARRANTY

- A. General Warranty: Door manufacturer's warranty specified in this article shall not deprive Owner of other rights Owner may have under other provisions of the contract documents and shall be in addition to and run concurrent with other warranties made by Contractor under requirements of the contract documents.
- B. Warrant doors by the manufacturer to be free of manufacturing defects as follows:
 1. Interior Solid Core: Life of installation.
- C. Exceptions to details or fire rating as shown on plans that may affect the door manufacturer's warranty, or specific fire rating, shall be brought to the attention of the Architect in writing at time of submission of shop drawings.
- D. Submit written warranty agreement signed by Manufacturer, Installer, and Contractor agreeing to pay a reasonable charge to repair or replace defective doors and rehang with new doors provided the defect was not apparent prior to installation and they do not conform to tolerance limitations of referenced quality standards as follows: warped (bow, cup, or twist) more than 1/16 inch in a 36 x 84 inch section or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 30 inch span.
- E. Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers: Products and materials of the following listed manufacturers are acceptable only if specific products and materials can evidence exact compliance with requirements of Contract Documents and these Specifications.
 1. Algoma Hardwoods, Inc.: www.algomahardwoods.com.
 2. Eggers Industries: www.eggersindustries.com/#sle.
 3. Weyerhaeuser Company: www.weyerhaeuser.com.
- B. Substitutions: See Section 01600 - Product Requirements.
- C. Provide all wood doors from a single manufacturer.

2.02 DOOR TYPES

- A. Flush Interior Doors:
 1. Thickness: 1-3/4 inches.
 2. Type: Solid core.
 3. Non-Fire rated.
 4. Fire rated.
 5. Acoustic rated.
 6. Lead lined.

2.03 DOOR CONSTRUCTION

- A. Core (solid, non-rated): AWI Section 1300-S-7, Type PC bonded particleboard.

- B. Core (solid, fire rated): AWI Section 1300-S-13, Type S (FD 1 1/2, FD 1, FD 3/4, FD 1/2, FD 1/3).
- C. Core (solid, acoustical): AWI Section 1300-S-13, Type SR.
- D. Core (solid, lead lined): AWI Section 1300-S-13, Type LL.

2.04 FLUSH DOOR FACING

- A. High Pressure Decorative Laminate Veneer Doors:
 - 1. Type: Grade 10 General Purpose, NEMA Standard LD-5.
 - 2. Thickness: 0.050 inches to be used without crossbanding.
 - 3. Pattern/Color No.: As indicated in Finish Drawings.
 - 4. Edge Trim: Laminate to match face.
 - 5. Door Thickness: 1-3/4 inches.

2.05 FABRICATION

- A. Grade: Premium.
- B. Non-Rated and 20 Minute Fire-Rated Doors: AWI 1300; PC-HPDL-5.
 - 1. Core: Mat-formed wood particleboard, ANSI A208.1, Grade LD-2; 28-32 pcf density.
 - 2. Bonding: Stiles and rails bonded to core using Type I glue and sanded as a unit prior to applying laminate veneers. Drop in core is not acceptable.
 - 3. Non-rated Stiles: 1-1/2 inch deep before fitting. 1 inch minimum after trimming, 2 ply construction without fingerjoints, consisting of 1/2 inch thick outerband specie matching or compatible with face veneer and 1 inch thick innerband of TimberStrand Laminated Strand Lumber (LSL), a structural composite lumber (SCL) by Trus Joist MacMillan or hardwood at mill option.
 - 4. Rated Stiles: As required by manufacture to permit positive pressure "S" label per Category H. 1-1/2 inch deep before fitting. 1 inch minimum after trimming, 2 ply construction without fingerjoints, consisting of 1/2 inch thick outerband species matching or compatible with face veneer and 1 inch thick innerband of TimberStrand Laminated Strand Lumber (LSL), a structural composite lumber (SCL) by Trus Joist MacMillan or hardwood at mill option.
 - 5. Pairs: Use UL 20 minute labeled pairs with fire retardant stiles without steel channels covering meeting edges on a pair measuring 4 feet by 10 feet maximum each leaf.
- C. Fire Rated, 45, 60, and 90 Minute Doors (AWI 1300): FD-HPDL-3
 - 1. Core: Door manufacturer's standard non combustible mineral core; incombustible, asbestos-free mineral composition, engineered to meet labeling requirements.
 - 2. Stiles and Rails: As required by manufacture to permit positive pressure Category A concealed intumescent. Manufacturer's standard sizes to meet fire rating, bonded to the door.
 - 3. Crossbands: For 1-1/2 hour labeled decorative laminate doors only, include crossbands dried to 6-9 percent moisture content, minimum 1/16 inch thick spliced hardwood with no voids or defects, extending full width of doors with grain at right angles to face veneer.
 - 4. Blocking: No through-bolting is allowed for attaching finished hardware. Refer to Section 08710 for hardware requirements. Provide composite blocking designed to maintain fire resistance of door but with improved screw-holding capacity "as required by specified hardware" with one or all of the following options:
 - a. 5 inch top rail blocking to accommodate surface mounted closer attached with wood screws.
 - b. 5 inch bottom rail blocking to accommodate hardware attachment not unlimited undercutting.
 - c. 5 inch by 18 inch lockblocks for locksets and exit devices.
 - d. Blocking for flushbolts and vertical rod exit devices.
 - 5. Pairs: Provide 20, 45, 60, and 90 minute single swing or double egress fire rated doors "as required by specified hardware." Where exit devices are required, comply with one or more of the following:
 - a. Non-Rated and 20 Minute Fire Rated Doors:

- 1) Single Swing or Double Egress doors up to 8 feet by 10 feet opening size, manufacture doors to receive:
 - (a) Surface-applied vertical rod fire exit devices; no metal edges or astragals required.
- b. 45, 60, and 90 Minute Fire Rated Doors:
 - 1) Single Swing or Double Egress doors up to 8 feet by 8 feet opening size:
 - (a) Manufacture doors to receive surface applied vertical rod fire exit devices with Georgia-Pacific fire door components or approved equal, having Natural matching wood edge meeting stiles, 2 ply construction consisting of an innerband of fire retardant composition material of Georgia-Pacific Firestop or approved equal, outerband natural hardwood matching or compatible to face veneer.
 - (b) Double egress requires through-bolting or "sex" bolts at latching points; surface top rod only devices must be through-bolted (sex bolts). Metal edges and overlapping astragals are available, but not required.
- D. Individually polybag all doors.
- E. Acoustically Rated Construction: AWI 1300 G-10-SR.
 1. Core: Manufacturer's standard sound dampened core construction to achieve a sound transmission class rating of not less than 41 for a door thickness of 1-3/4 inches, certified by the manufacturer to be based on tests conducted at an independent testing agency in accordance with ASTM E 90 and E 413, as operating units.
 2. Vertical Stiles: Minimum 1-3/8 inch minimum after trimming, 2 ply construction without fingerjoints, consisting of 1/2 inch thick hardwood outerband (stained or painted to match face veneer) and 1 inch thick innerband of TimberStrand Laminated Strand Lumber (LSL), a structural composite lumber (SCL) by Trus Joist MacMillan, or hardwood at mill option.
 3. Bottom Rail: 2-1/8 inch minimum mill option hardwood.
 4. Top Rail: 1-3/8 inch minimum mill option hardwood.
 5. Crossbands: Full width of door with grain running horizontally, tapeless sliced without voids.
 6. Bonding:
 - a. Core to Stiles, Rails, and Blocking: Type I adhesive; sand prior to assembly of face veneers.
 - b. Face Veneers and Crossband to Core and Edges: Type I adhesive by hot press process.
- F. Lead Lined Construction: AWI 1300-S-3(LL).
 1. Core: Manufacturer's standard construction; one piece lead sheet or sheets extending to all four edges; total door thickness 1-3/4 to 2-1/2 inches.
 2. Face Veneer: Same as non-lead lined doors.
 3. Stile and Rails:
 - a. Vertical Edges: 1-1/8 inch minimum hardwood; stained or painted to match. Solid, visible surface; no visible joints permitted.
 - b. Top and Bottom Rails: 1-1/8 inch minimum, mill option hardwood.
 - c. Securely bond vertical edges and rails to core.
- G. Structural Composite Core Construction: TimberStrand LSL by Trus Joist MacMillan.
 1. Core: TimberStrand LSL or other structural composite lumber (SCL) as defined in ASTM D 5456; uniform density of 38 pcf, with minimum target MOR at 6,000 psi/MOE 1.3×10^6 psi.

2.06 FABRICATION TOLERANCES

- A. Size:
 1. Thickness: Plus or minus 1/16 inch.
 2. Height: Plus or minus 1/16 inch.
 3. Width: Plus or minus 1/32 inch.
- B. Squareness: Diagonal measures not to exceed 1/16 inch.

- C. Hardware Location: Plus or minus 1/32 inch.

2.07 ADHESIVE

- A. Facing Adhesive: Type I - waterproof.

2.08 ACCESSORIES

- A. Lite Details:
 - 1. Field glaze all lite openings.
 - 2. Furnish lite openings for fire doors with either flush wood veneered lite bead, stained or painted to match decorative laminate veneer face, or primed metal vision panels (veneered covered metal vision panels optional) as per the manufacturer's approvals. Flush wood veneered lite beads or metal vision panels shall be approved by Intertek Testing Services/Warnock-Hersey International for use in 20, 45, 60, and 90 minute doors.
 - 3. Glazing Stops:
 - a. Channel Shape: Roll steel.
 - b. Corners: Mitered.
 - c. Prepare for countersink style tamperproof screws.
 - 4. To maintain warranty, do not cut light exceeding maximum 40 percent of height and 5-1/2 inches from door edge and face hole prep-of lock set.

2.09 PREFIT AND PREMACHINE

- A. Comply with tolerance requirements of AWI Quality Standards, Section 013000. Locate hardware preparations in accordance with NWWDA I.S.1-A.
- B. Prefit doors at the factory with the following clearances:
 - 1. 1/8 inch on top and hinge edges.
 - 2. 1/8 inch on lock edge of single doors.
 - 3. 1/16 inch per leaf on pair meeting edges.
 - 4. Bevel both edges of door 1/8 inch in 2 inches.
 - 5. Bottom: 1/4 inch above floor or threshold, except where undercutting is indicated. Specific bottom clearance is shown on door schedule.
- C. Premachine doors for finish hardware.
 - 1. Furnish wood door manufacturer an approved frame schedule (including all hardware locations), approved hardware schedule (including all necessary hardware templates), and an approved door schedule.
- D. Kickplates, push plates, stretcher plates, edge guards, and other protective hardware shall be furnished by the hardware supplier or Contractor and installed in the field.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine doors and door frames to verify that frames have been installed as required for proper hanging and operation of doors.
 - 1. Frames must comply with indicated requirements for door type, size, location, and swing characteristics, and have been installed with plumb jambs and level heads.
 - 2. Doors with apparent defects should not be hung.
 - 3. Notify the Architect in writing of conditions detrimental to proper installation and operation of wood doors.
 - 4. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Adjusting and Cleaning: Doors shall swing in their respective frames free of hinge binding or improper latching.
 - 1. Rehang or replace doors which do not operate freely as directed by the Architect.
 - 2. Leave protective door wrappings in place until all work by other trades is complete and final inspection is finished.
 - 3. Furnish Owner with instructions on cleaning and maintaining doors.

B. Hardware: For installation, see Section 087100.

3.03 INSTALLATION TOLERANCES

A. Conform to AWI for requirements for fit and clearance tolerances.

3.04 ADJUSTING

A. Adjust work under provisions of Section 017000.

B. Adjust doors for smooth and balanced door movement.

3.05 SCHEDULE

A. See Construction Drawings.

END OF SECTION