

SECTION 081423 - CLAD WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Flush solid core low pressure clad or decorative laminate doors.
2. Flush solid core high pressure clad or decorative laminate doors.
3. Factory fitting clad wood doors to frames and factory machining for hardware.
4. Louvers installed in clad wood doors.
5. Light frames and glazing installed in clad wood doors.

B. Related Sections:

1. Division 01 Section "Sustainable Design Requirements" for additional LEED documentation and requirements.
2. Division 08 Section "Flush Wood Doors and Wood Frames" for clad wood doors in wood frames.
3. Division 08 Section "Hollow Metal Doors and Frames" for clad wood doors in steel frames.
4. Division 08 Section "Glazing" for glass view panels in wood doors.
5. Division 08 Sections "Door Hardware" and "Access Control Hardware" for door hardware for clad wood doors.
6. Division 13 Section "Radiation Protection" for lead-lined clad doors and frames.
7. Division 28 Section "Access Control" for access control devices installed at door openings and provided as part of a security access system.

C. Standards and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A208.1 - Particleboard.
2. ASTM E90-90 - Measurement of Airborne Sound Transmission Loss of Building Partitions.
3. ASTM E 413 - Classification for Rating Sound Insulation.
4. Architectural Woodwork Standards - AWS Section 9, Doors; Quality Standards of the Architectural Woodwork Institute (AWI) and Woodwork Institute (WI).
5. Forestry Stewardship Council (FSC) - Guidelines for environmentally certified wood doors.
6. Intertek Testing Service (ITS Warnock Hersey) - Certification Listings for Fire Doors.
7. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.

8. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
9. UL 10C - Positive Pressure Fire Tests of Door Assemblies; UL 1784 - Standard for Air Leakage Tests of Door Assemblies.
10. United States Green Building Council (USGBC).
11. Window and Door Manufacturers Association - WDMA I.S.1-A Architectural Wood Flush Doors.
12. Window and Door Manufacturers Association - WDMA I.S. 10 Industry Standard for Testing Cellulosic Composite Materials for Use in Fenestration Products.

1.3 SUBMITTALS

- A. Product Data: For each type of door indicated. Include details of core and edge construction, louvers, trim for openings, and WDMA I.S.1-A or AWS classifications.
- B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the clad door supplier in order to prepare the doors and frames to receive the finish hardware items.
- C. 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 fire protection ratings for fire rated doors.
- D. Samples for Initial Selection: For decorative laminate door faces.
 1. Decorative laminate, 8 by 10 inches, for each color and pattern selected.
 2. Corner sections of doors, 5 x 11 inches, with door faces and edges representing actual materials to be used.
 3. Frames for light openings, 6 inches long, for each material, type, and finish required.
- E. Informational Submittals:
 1. Submit manufacturer's environmental documentation and applicable sustainability program credits that are available to contribute towards a LEED rated project certification.
- F. Warranty: Sample of special warranties.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain clad wood doors through one source from a single manufacturer wherever possible.

- B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, latest edition, "Industry Standard for Architectural Wood Flush Doors." and the following minimum values (for particle core doors):
1. NWWDA TM-7 Cycle Slam Test: 1,000,000 cycles.
 2. NWWDA TM-8 Hinge Loading Test 1,000 lbs.
 3. NWWDA TM-10 Edge Screw Holding Test 850 lbs.
 4. NWWDA TM-10 Face Screw Holding Test 650 lbs.
- C. 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 (neutral pressure at 40" above sill) or UL 10C.
1. Oversize Fire Rated Door Assemblies: For units exceeding sizes of tested assemblies provide manufacturer's construction label, indicating compliance to independent 3rd party certification agency's procedure, except for size.
 2. Temperature Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire test exposure.
 3. Smoke Control Door Assemblies: Comply with NFPA 105.
 - 1) Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.
 4. Blocking: When through-bolts are not to be used, indicate size and location of blocking in 45, 60 and 90 minute mineral core doors
- D. Security Rating for Particle Core Doors: ASTM F 476, Grade 40.
- E. Environmental Certification: Provide Forestry Stewardship Council (FSC) authorized certificate for doors requiring environmental certification. Environmental certification ensures that wood components come from certified forests and are processed by certified chain-of-custody manufacturers.
1. LEED Certification: Doors manufactured under guidelines of LEED to be built to USGBC standards for contributing to LEED point calculations.
- F. Sound Rating Test Reports: Submit manufacturer's test results of STC ratings from testing performed by independent testing agency for sound resistant doors
- G. Antimicrobial Surfaces: Silver-based resin surface achieving Pass grade conforming to JIS Z2801:2000 test method for antimicrobial efficacy including Escherichia coli and MRSA. Certification to be documented by reputable independent research institute.
- H. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for receiving, handling, and installing clad wood doors.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package clad wood doors individually in plastic bags or cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top rail with opening number used on Shop Drawings.

1.6 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.

1.7 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. Delaminating of face in decorative laminate faced doors.
 - 2. Warranty Period for Solid Core Interior Doors: Life of installation according to manufacturer's written warranty.

PART 2 - PRODUCTS

2.1 DOOR CONSTRUCTION, GENERAL

- A. WDMA I.S.1-A Performance Grade: Extra Heavy Duty; Aesthetic Grade: Premium.
- B. Particleboard Core Doors:
 - 1. Particleboard: ANSI A208.1, Grade M-2.
 - 2. Wood Stiles and Rails: As required to meet Extra Heavy Duty Performance level.
 - 3. Blocking: As required to meet Extra Heavy Duty Performance level.
- C. Mineral Core Doors:
 - 1. Core: Non-combustible 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 needed to eliminate through-bolting hardware.

3. Edge Construction: At hinge stiles, provide laminated edge construction with improved screw holding capability and split resistance with outer stile matching polymer edging.
- D. Fire Rated Doors: Provide construction and core specified above as needed to provide fire ratings indicated.
1. Category A Edge Construction: Provide fire rated door edge construction with intumescent seals concealed by outer stile (Category A). Comply with specified requirements for exposed edges.
 2. Category B Edge Construction: Provide minute fire rated doors as Category B, with smoke and fire seals (supplied by seal manufacturer) applied to frame.
 3. 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.
 - a. Where required or specified, provide formed steel edges and astragals with intumescent seals. Finish steel edges and astragals with baked enamel.
- E. Environmentally Responsible Doors: Provide where specified doors manufactured with the following environmentally responsible components:
1. Particleboard Core:
 - a. Certified Wood: Interior flush clad wood flush doors (including fire rated doors) to be manufactured in accordance with FSC principles and criteria for wood building component and have FSC Chain of Custody certification.
 - b. Recycled Content: Interior flush clad wood doors to contain a minimum of 70% recycled and recovered content as certified by Scientific Certification Systems (SCS).
 - c. Low Emitting Materials: Interior flush clad wood doors must contain no added urea-formaldehyde resins.
- F. Special Function Doors: Special core constructions applicable for Sound Resistant (STC) and Radiation Shielding (Lead-Lined) doors.
1. Sound Resistant Doors: 1-3/4" thick sound resistant doors complying with the Sound Transmission Class (STC) ratings as prescribed in the latest version of ASTM Standard E-90. Doors are to be furnished complete with gaskets and other acoustical accessories required for specified STC rating. Consult manufacturer details for gasketing, automatic door seals, thresholds, and other hardware or special frames which may be required.
 - a. Provide sound resistant doors with minimum STC sound rating as indicated.
 2. Radiation Protection (Lead-Lined) Doors: Lead lined doors manufactured with a particleboard or structural composite lumber core with continuous lead sheeting from edge to edge in the center of the door or between the cross banding and the core.
 - a. Provide lead-lined doors with minimum thickness as indicated:
 - 1) 1/32-inch.

- 2) 1/16-inch.
- 3) 1/8-inch.
- 4) 1/4-inch.

2.2 DECORATIVE LAMINATE FACED DOORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acrovyn vinyl clad flush door.
 2. Eggers Industries – eiDoor.
 3. The Maiman Company – Thermal Fused.
- B. Low Pressure Decorative Laminate (LPDL) Thermal Fused Faces:
1. Low pressure decorative laminates faces thermally fused to cores under heat and pressure, complying with Laminating Materials Association’s Product Standard and Typical Physical Properties of Decorative Overlays. LMA.2003.
 2. Color or Wood Grain Pattern:
 - a. T1207 Light Beige
 - b. A604 Natural Oak
 - c. A605 English Oak
 - d. A1255 Laredo Oak
 - e. D001 Mahogany
 - f. D609 Contract Mahogany
 - g. H1228 Lucas Point Cherry
 - h. H1268 Gordon Cherry
 - i. H1271 Paragon Cherry
 - j. H1333 Accord Maple
 - k. H1334 Gentle Anigre
 - l. 389 Maiman Mahogany
 3. Exposed Edges: Impact resistant polymer edging, minimum .040” thick, applied to all four edges after faces.
 - a. Polymer Edging Color or Wood Grain Pattern: Manufacturer's standard color that most closely matches faces.
 4. Provide doors with pilot holes factory drilled for vertical edge hinges and lock sets.
- C. High Pressure Decorative Laminate (HPDL) Faces:
1. Grade: Premium. Extra Heavy Duty.
 2. Plastic Laminate Faces: High pressure decorative laminates complying with NEMA LD 3, Grade HGS.
 3. Core: Particleboard type LD-2, Structural composite lumber.
 4. Color or Wood Grain Pattern: Acceptable manufacturer’s equivalent to the specified low pressure decorative laminate face.

5. Exposed Edges: Impact resistant polymer edging, applied to all four edges after faces.
 - a. Polymer Edging Color or Wood Grain Pattern: Manufacturer's standard color that most closely matches faces.
 6. Provide doors with pilot holes factory drilled for vertical edge hinges and lock sets.
 7. Blocking: Provide wood blocking in particleboard and mineral core doors as follows:
 - a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
 - b. 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c. 5-inch (125-mm) mid-rail blocking, in doors indicated to have exit devices.
 8. Construction: Stiles and rails are bonded to core, then entire unit abrasive planed before faces and crossbands are applied.
- D. Antimicrobial Surface: Provide clad wood doors with an EPA and NSF listed silver-based, antimicrobial finish approved use in medical and food preparation equipment. Antibacterial certification to be documented by reputable independent research institute.

2.3 LOUVERS

- A. Wood Louvers: Door manufacturer's standard solid wood louvers unless otherwise indicated.
- B. Metal Louvers: Door manufacturer's standard metal louvers unless otherwise indicated.
 1. Blade Type: Vision proof inverted V or inverted Y.
 2. Metal and Finish: Galvanized steel, 0.040 inch thick, factory primed for paint finish with baked enamel or powder coated finish.
- C. Louvers for Fire Rated Doors: Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire protection rating of 1-1/2 hours and less.
 1. Manufacturers: Subject to compliance with requirements, provide door manufacturers standard louver to meet rating indicated.
 2. Metal and Finish: Galvanized steel, 0.040 inch thick, factory primed for paint finish with baked enamel or powder coated finish.

2.4 LIGHT FRAMES AND GLAZING

- A. Wood Beads for Light Openings in Wood Doors up to and including 20-minute rating:
 1. Wood Species: Manufacturer's standard wood beads factory finished to match door face.
 2. Profile: Manufacturer's standard lipped profile. At wood core doors with 20-minute fire protection ratings, provide wood beads and metal glazing clips approved for such use

- B. Metal Frames for Light Openings in Fire Rated Doors over 20-minute rating: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated.
- C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with the flush wood door manufacturer's written instructions.

2.5 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. 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. Openings: Cut and trim openings through doors in factory.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Glazing: Comply with applicable requirements in Division 08 Section "Glazing."
 - 3. Louvers: Factory install louvers in prepared openings.
- D. Electrical Raceways: Provide clad wood doors receiving electrified hardware with concealed wiring harness and standardized Molex™ plug connectors on both ends to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electrified hardware and the through wire transfer hardware or wiring harness specified in hardware sets in Division 08 "Door Hardware". Wire nut connections are not acceptable.

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 Division 8 Section "Door Hardware."
- 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. Factory Fitted Doors: Align in frames for uniform clearance at each edge.

3.3 ADJUSTING

- A. Operation: Re-hang or replace doors that do not swing or operate freely.
- B. Replace doors that do not comply with requirements. Doors may be repaired if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081423