Section 08211 - 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 1 Specification Sections, apply to this Section.

1.2 Summary

A. This Section includes the following:

1. Solid-core doors with Low-Pressure Decorative Laminate (herein referred to as "LPDL") Thermal Fused faces.
2. Factory fitting flush wood doors to frames and factory machining for hardware.
3. Louvers and vision lite kits for flush wood doors.

B. Related Sections include the following:

1. Division 1 Section "LEED Requirements" for additional LEED requirements.
2. Division 6 Section "[**Finish Carpentry**] [**Interior Architectural Woodwork**]" for wood door frames.
3. Division 6 Section "[**Interior Architectural Woodwork**] [**Paneling**]" for requirements for LPDL for both flush wood doors and wood paneling.
4. Division 8 Section "Glazing" for glass view panels in flush wood doors.
5. Division 13 Section "Radiation Protection" for lead-lined flush wood doors.

1.3 Submittals

A. Product Data: For each type of door. 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; 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 ratings for fire doors.

C. Samples for Initial Selection: Color samples consisting of actual faces in small sections for the following:

1. LPDL Thermal Fused Door Faces: Show the full range of colors and woodgrains available.

D. Samples for Verification:

1. Hinge corner sections of LPDL Thermal Fused doors, approximately 5 by 11 inches (127 by 279 mm) for each color or wood grain specified.

2. Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.
3. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

E. LEED Submittals:
1. Credit MR 4.1 and 4.2: Interior wood particleboard flush doors to contain a minimum of 70% recycled & recovered content, as certified by SCS (Scientific Certification Systems). Include evidence that door manufacturer is certified with SCS by providing certificates and labeling each crate of doors delivered to the jobsite.
2. Credit EQ 4.4: Adhesive and composite wood materials manufacturers' product data indicating no added urea-formaldehyde content.
3. Credit MR 7.0: Interior particleboard doors to be FSC Mixed 70%, with Chain of Custody number indicated on shipping documents and invoices. Include evidence that door manufacturer is FSC Certified by providing certificates.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified independent third party testing agency, for doors, showing compliance with specified performance requirements and physical properties.

1.4 Quality Assurance

A. Source Limitations: Obtain LPDL Thermal Fused Flush Wood Doors through one source from a single manufacturer.

B. Quality Standard: Comply with **WDMA I.S.1-A, 2004 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 according to [**UL 10C**] [**NFPA 252**] [**UBC Standard 7-2**].

1. Test Pressure: [**Test at atmospheric pressure**] [**After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill – positive pressure**].

2. Positive Pressure Fire-Rated Wood Doors: 20 minute doors to be Category B with frame-applied seals and 45, 60 & 90 minute doors to be Category A, with concealed intumescents.
3. Oversize, Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's standard Construction Label, acceptable to authorities having jurisdiction, stating that doors comply with requirements of design, materials, and construction.
4. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 250 deg F (121 deg C) maximum after 30 minutes of fire exposure. Doors with this temperature-rise rating are limited to 100 sq. inches of clear view area of glazing.
5. 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:
   1. ASTM F 476, Grade 40.

E. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

F. Antimicrobial Surface: Door's surface must achieve Pass grade conforming to JIS Z2801:2000 test method for antimicrobial efficacy. to incl. Staphylococcus aureus, Escherichia coli and MRSA as test germs. Minimum of Log 3 reduction.

   1. Certified efficacy after simulated long-term use.

   2. Certification conducted by reputable independent research body/institute.

1.5 Delivery, Storage, And Handling

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors to prevent damage in transit. Place doors on cardboard or wooden skids and wrap entire 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 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.

B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity is between 25% and 55% 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 that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 48-by-84-inch (1219-by-2134-mm) section, or show telegraphing of core construction in face exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span.
   a. Warranty shall be in effect for the life of the 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:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. LPDL Thermal Fused Flush Wood Doors:

a. The Maiman Company, Springfield, MO

b. Acrovyn Vinyl clad flush door

c. Eggers InPro Vinyl clad Flush door

d. Approved equal

2. Metal Lite Kits and Louvers for Doors:
a. All Metal Stamping

2.2 Door Construction, General

A. Adhesives: Do not use adhesives containing urea formaldehyde.

B. LPDL Thermal Fused Wood Flush Doors:

1. WDMA I.S. 1A Performance Duty Level: Extra Heavy Duty

2. WDMA I.S. 1A Aesthetic Grade: Premium

3. LPDL Thermal-Fused Faces: Decorative 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.
4. Color or Woodgrain Pattern: [**As indicated**] [**As selected by Architect from manufacturer's full range of products**].

5. Edgebanding: Impact-resistant polymer edging, minimum .040" thick, applied to all four edges after faces on all particle and mineral core doors. [**As selected by Architect from manufacturer's full range of products**] [**Manufacturer's standard color that is complementary to faces**] [**Manufacturer's standard color that most closely matches faces**] [**COMPLEMENTARY color**] [C**OMMERCIAL MATCH faces**].

6. Provide doors with pilot holes factory-drilled for vertical edge hinges and lock sets.

2.3 Solid-Core Doors

A. Particleboard Cores: Comply with the following requirements:

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.

B. Mineral Core Fire-Rated Doors:

1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.
2. Blocking: For mineral-core doors, [**use through bolts without composite blocking**] [**provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware**, **as follows:**]

    a. 5-inch (125-mm) top-rail blocking for closer attachment.
    b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates or mortised automatic door bottoms.
    c. 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
    d. [**4-1/2-by-10-inch (114-by-250-mm) lock blocks**] [**5-inch (125-mm) midrail blocking**], in doors indicated to have exit devices.

3. Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching polymer edging.

4. Edge Construction Category A Mineral Core Doors: Provide edge construction with intumescent seals concealed by outer stile matching polymer edging, and laminated backing for improved screw-holding capability and split resistance.

5. Pairs: For 45, 60 & 90 minute fire doors, provide meeting stiles with concealed intumescents, to eliminate the need for metal meeting edges and/or overlapping astragal.

2.4 Louvers And Light Frames

A. Wood Louvers: Door manufacturer's standard solid-wood louvers, unless otherwise indicated.

B. Metal Louvers:

1. Blade Type: [**Vision-proof, inverted V**] [**Vision-proof, inverted Y**] [**Darkroom-type, double inverted V**].
2. Metal and Finish: Galvanized steel, 0.0396 inch (1.0 mm) thick, hot-dip zinc coated and factory primed for paint finish.

C. Fire Door Louvers: Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire rating of one and one-half hours and less.

1. Metal and Finish: Galvanized steel, 0.0396 inch (1.0 mm) thick, hot-dip zinc coated and factory primed for paint finish.

D. Wood Beads for Light Openings in Particle Core Wood Doors:

1. Wood Species: Factory finished to match door face
2. Profile: Manufacturer's standard lipped profile.
3. At 20-minute, fire-rated, wood-core doors, provide wood beads and intumescent glazing tape approved for such use.

E. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 0.0478-inch- (1.2-mm-) thick, cold-rolled steel sheet; factory primed and approved for use in doors of fire rating indicated.

2.5 Fabrication

A. Fabricate doors in sizes indicated for Project-site fitting.

B. 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.

C. 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.

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.

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. Manufacturer's Written Instructions: Install doors, lite kits, and glazing 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.

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.