SECTION 08212

FLUSH WOOD DOORS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes the requirements for furnishing and installing flush wood doors including Dutch Doors.

B. Related Sections:

1. Pressed hollow metal (steel) door frames are specified in Section 08110.
2. Interior aluminum frames are specified in Section 08121.
3. Finish hardware is specified in Section 08710.
4. Glass for vision panels is specified in Section 08810.
5. Field finishing of doors and accessories is specified in Section 09900.

1.02 REFERENCE STANDARDS

A. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC).

1. LEED – NC v2.2 Reference Guide, first edition, dated December 2006.

1.03 SUBMITTALS

A. Refer to Section 01352 – LEED Requirements for LEED related submittal requirements.

B. Product Data: Manufacturer's descriptive and technical data and illustrations for each type of door including details of core and edge construction, and trim for openings.

1. Recycled Content: Furnish product data on post-consumer recycled content and post-industrial recycled content as a percentage of the full product composite.
2. Regional Materials: Furnish product data or letter stating the location (closest city, state) where product was manufactured (final processing or assembly) and, if available, the location where raw materials were harvested, extracted or recovered (mine, quarry, plantation, forest, recycling recovery center, etc.).

C. Shop Drawings: Indicate location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other data.

1. Shop drawings shall comply with AWS Section 1 – Submittals.
2. Furnish an AWS "Certified Compliance Label" on the first page of the shop drawings.

E. Certified Lumber: Documentation as specified.

1.04 QUALITY ASSURANCE

A. Flush wood door construction shall comply with Architectural Woodwork Standards (AWS) Section 9 for Premium grade doors.

B. Fire-Rated Doors: Provide wood doors that comply with CBC; are identical in materials and construction to units tested in door and frame assemblies in accordance with NFPA 252; and are labeled and listed by UL, Warnock Hersey, or other testing and inspection agency acceptable to authorities having jurisdiction.

C. Allowable Tolerances:

1. Warp Tolerance: As specified in Section WDMA T-2. In addition, warp tolerance shall apply to pairs of doors and to doors in relation to the frame or jamb in which hung.

2. Squareness: WDMA T-3.

3. Gap Tolerance: As specified in Architectural Woodwork Standards Section 9, Section 4.3.8 and Section 6.1.20.

4. Flushness of Joinery: As specified in Architectural Woodwork Standards Section 9, Section 6.1.21.

D. Flush wood doors and steel frames specified in Section 08110 and aluminum frames specified in Section 08121 shall comply with positive pressure test requirements of UL 10C and shall be labeled accordingly by the door and frame manufacturer in a manner approved by authorities having jurisdiction. Door label shall include hourly rating followed by the letter "S" indicating conformance with air leakage resistance testing, serial number, and the listing agency's certification mark.

E. WI Certified Compliance Program (CCP):

1. Before delivery to the Project site, if the fabricator/supplier is:

a. A WI licensee, issue WI "Certificates of Compliance" certifying that items comply with WI requirements for specified grade.

b. A non-WI licensee, furnish a WI "Certified Compliance Tracking Acknowledgement" with the original submittal, evidencing that they have arranged for and will pay inspections required by the WI to comply with the specified requirements. Certified Compliance labels shall be affixed by the WI Inspector.

2. Upon completion of installation, furnish a WI Certified Compliance Certificate for the installation.

3. In the event of question as to compliance with the referenced standard of any item of work, the Architect may require independent inspection service of questioned items as specified in "Independent Inspection Service" of WI "Services and Quality Control Options" published by the WI.

1.05 ENVIRONMENTAL QUALITY ASSURANCE

A. Wood Products: Shall originate in forests that are certified well-managed by an agency accredited by the Forest Stewardship Council (FSC), 202.342.0413.

1. FSC-accredited certifying agencies include the following:

a. Smart Wood Program administered by the Rainforest Alliance, 802.434.5491.

b. Forest Conservation Program administered by Scientific Certification Systems, 510.832.1415.

c. For a complete list of internationally accredited agencies, visit www.fscoax.org.

2. Well-managed shall mean forests that are being managed through professionally administered forestry management and logging plans that ensure regeneration of desired species so that timber growth equals or exceeds harvesting rates in both quantity and quality over the long term. Other considerations include protecting rivers and streams from degradation, minimizing damage to the forest when harvesting, promoting biodiversity, operating in concert with the lawful interests of local populations, and maximizing both the yield and value of the forest products.

B. Documentation confirming the FSC-certified status of all wood products shall be submitted for approval prior to fabrication. Products not complying with this requirement will be rejected. Acceptable documentation includes the following:

1. A copy of the wood supplier's Chain of Custody certificate issued by an FSC-accredited certifying agency and a copy of the supplier's invoice detailing the quantities of certified wood products supplied for this Project, with the FSC-certified status of each product listed in the individual line-items, or

2. A copy of a letter from a FCS-accredited certifying agency corroborating that the products detailed on the wood supplier's invoice originate from certified well-managed forests.

C. Submission of a Chain of Custody certificate without an invoice or submission of an invoice without a Chain of Custody certificate shall not constitute acceptable documentation.

D. Proper procedures shall be followed to ensure that certified wood products are kept separate from non-certified materials and that auditing procedures as mandated by the certifier are complied with.

E. Wood doors and door cores shall have no added urea-formaldehyde.

F. Applicable LEED Credits – Refer to Section 01352:

1. Credit MRc5 – Regional Materials.

2. Credit EQc4.1 – Adhesives and Sealants.

3. Credit EQc4.4 – Composite Wood.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver doors individually protected with polyvinyl or plastic wrap, identified with manufacturer's name, and name and type of door. Identify each door with same symbol used on door schedule. Leave protection on door during construction.

1. Comply with Architectural Woodwork Standards (AWS) – Section 2 for delivery, storage, and handling of doors.

B. Store doors covered and flat, supported above a level surface in a dry, well ventilated building in compliance with Architectural Woodwork Standards (AWS) – Section 2.

C. Do not subject doors to extremely high or low temperatures or humidity.

D. Handle with clean gloves; do not drag doors across one another or other surfaces.

1.07 PROJECT CONDITIONS

A. 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 the remainder of construction period in compliance with the requirements specified in Architectural Woodwork Standards (AWS) – Section 2.

1.08 WARRANTY

A. Warrant each solid core interior door against defects in materials and workmanship for the life of the original installation, including costs of rehanging. Defects include, but are not limited to the following:

1. Cores shall not telegraph through door faces. Stile, rail, and core show-through shall be considered a defect when the face of the door varies from a true plane in excess of 0.010-inch in a 3-inch span.

2. Doors shall not have warped (bow, cup, or twist) more than 1/4-inch in a 42-inch x 48-inch section.

B. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Algoma Hardwoods, Inc., Eggers, VTI, Marshfield Doors, Western Oregon Door or approved equal.

2.02 FLUSH WOOD DOORS, GENERAL

A. Type: Flush veneered, five-ply construction. Doors with seven-ply construction will not be acceptable.

B. Door Grade:

1. Fabricate flush wood doors to receive transparent finish in accordance with Architectural Woodwork Standards (AWS) Section 9, Premium Grade.

C. Cross Banding: Manufacturer's standard, minimum 1/16-inch thick. Fire-retardant treated where required by testing agency.

D. Door Thickness: 1-3/4-inches, unless otherwise indicated.

E. Fabricate wood doors in sizes indicated for either job-site fitting or factory fit doors to suit frame-opening sizes indicated, at the Contractor's option. Factory fit doors shall comply with the following uniform clearances and bevels:

1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-resistance-rated doors.

F. For doors that are pre-machined, 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 proceeding with factory machining.

2.03 INTERIOR FLUSH WOOD DOORS

A. Veneer:

1. Transparent Finished Doors:

a. Veneer Species and Grade: Architectural Woodwork Standards (AWS) Grade AA, Maple, quarter sawn.

b. Veneer Matching: Book and balance matching.

c. Pairs and Sets: Provide pair matching and set matching for pairs of doors and for doors hung in adjacent sets.

d. Doors in same room or area shall be matched for color and grain.

B. Adhesive: NWWDA IS-1.6, Type II adhesive bond or better for cores, Type I adhesive bond for faces and cross bands.

C. Cores:

1. Non-rated Doors: FSC certified core.

2. 20-Minute Fire-Rated Doors: Solid particle board conforming to ANSI A208.1.

3. Fire-Rated Doors Greater than 20-Minute Rated: Incombustible mineral approved by labeling authority. Provide top, bottom, and intermediate blocking for surface-mounted hardware.

4. Cores shall contain no added urea-formaldehyde.

D. Edge Construction:

1. 20-Minute Fire-Rated Doors and Non-rated Doors:

a. Stiles and Rails: Minimum 1-3/8-inch wide by full core thickness glued to core. Provide wider hinge stile where recommended by door manufacturer for door size and type of hinges to be used. Exposed edges of stiles shall be smooth, straight cut, free from knots, pitch pockets, and other defects for a minimum distance of 1/4-inch from the outside edge along the entire stile.

b. Species:

1) Stiles: Same grade as face veneer for doors to receive transparent finish.

2) Rails: Hardwood or softwood at manufacturer's option.

c. Edge Banding: Minimum 1/2-inch wide by full core thickness. Edge bands if used may reduce the width of stiles and rails. Species for doors to receive transparent finish shall be same as face veneer.

2. Fire-Rated Doors Greater than 20-Minute Rated:

a. Top Rail: Door manufacturer's standard special laminated material.

b. Stiles and Rails: Hardwood, fire-retardant treated where required by label. Sizes required by testing agency.

E. Edge Clearances:

1. Jambs and Heads: 1/8-inch.

2. Meeting Stiles of Pairs of Doors: 1/4-inch.

3. Bottom of Door to Top of Finish Floor: 3/4-inch at concrete, 5/8-inch at resilient flooring, 3/8-inch at carpet, tile, thresholds, and other finish flooring.

2.04 LIGHT FRAMES

A. Type: Factory-installed prefabricated steel units.

B. Opening Sizes: As scheduled.

C. Finish: Factory prime painted.

D. Provide units approved by labeling authority where used in fire-rated doors.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine door frames and verify that frames are of the correct type and have been installed as required for proper hanging of corresponding doors. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Condition doors to average prevailing humidity in installation area prior to hanging.

3.03 INSTALLATION

A. Install wood doors in accordance with the manufacturer's printed instructions, as indicated and in accordance with Architectural Woodwork Standards, Section 9.

B. Fire-Rated Doors: Install in fire-rated frames in accordance with requirements of CBC.

C. Job-Fit Doors: For doors not factory-machined, align and fit doors in frames with uniform clearances and bevels as specified; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.

1. Fitting Clearances:

a. Jambs and Heads: 1/8-inch.

b. Meeting Stiles of Pairs of Doors: 1/4-inch.

c. Bottom of Door to Top of Finish Floor: Not more than 3/4-inch at concrete, 5/8-inch at resilient flooring, 3/8-inch at carpet, tile, thresholds, and other finish flooring.

2. Bevel non-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. Cutouts, Recesses, and Exposed Rail Edges: Unless factory provided, paint with two coats of clear sealer, each coat well dried, before hardware is set in place.

3.04 ADJUSTING AND PROTECTION

A. When complete, doors shall be flat within allowable tolerance, shall be plumb in all positions of swing, and shall operate smoothly, quietly, and free from binding. Re-hang or replace doors that do not swing or operate freely.

B. Exposed surfaces shall be uniform in appearance, clean and free from scratches, tool marks, dents, discoloration, stains, and other damage and defects.

C. Replace doors damaged during installation.

D. Protect doors as recommended by door manufacturer to ensure that doors will be without damage or deterioration at completion of Project.

END OF SECTION