

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes solid core flush wood doors.
 - 1. The integration of a security system into the flush wood door work is required. The Contractor shall be responsible for the total and complete coordination of the security system components into the Work.

1.2 ACTION SUBMITTALS

- A. Product Data: Submit product data for each type of door required. Include factory-finishing specifications.
 - 1. Submit laboratory test report results of hinge loading, cycle/slam, stile edge screw withdrawals, and stile edge split resistance for fire rated doors.
- B. Shop Drawings: Submit shop drawings indicating location, size, thickness, and hand of each door; elevation of each kind of door; construction details not covered in the product data; location and extent of hardware blocking; clearances, special beveling, and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware of factory machined doors.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate fire label requirements including fire rating time duration, maximum temperature rise requirements, and smoke label requirements.
 - 4. Indicate routing of electrical conduit and dimensions and locations of cutouts in wood doors to accept electric hardware devices.
- C. Samples: Cut away corner section of each door type approximately 8 by 10 inches demonstrating door construction, face veneer and finish.

1.3 INFORMATIONAL SUBMITTALS

- A. Certificate of Compliance for Fire Rated Doors: Provide copies of testing agency's Certificate of Compliance for all fire rated door assemblies, all smoke and draft control door assemblies, and all temperature rise rated door assemblies.

1.4 QUALITY ASSURANCE

- A. Quality Standard: Comply with the applicable provisions and recommendations of AWI's "Architectural Woodwork Quality Standards Illustrated, 8th Edition, Version 2.0, Section 1300" where standards and specifications conflict the more stringent shall be required.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252, and UL 10C "Standard for Positive Pressure Fire Tests of Door Assemblies." Fire classification labels at all doors with fire ratings greater than 20 minutes shall indicate the temperature rise developed on the unexposed surface of the door after the first 30 minutes of fire exposure.
 - 1. Provide metal labels permanently fastened on each door which is within the size limitations established by the labeling authority having jurisdiction.
 - 2. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.
 - 3. Positive Pressure Rated Door Assemblies: Where indicated provide positive pressure rated fire rated door assemblies. Sizes and configurations as shown on the Drawings. Installed door assemblies shall be in accordance with door manufacturer's certified assemblies.
 - a. Test Pressure: Test according to NFPA 252 or UL 10C. After 5 minutes into the test, neutral pressure level in furnace shall be established at 40 inches or less above the sill.
 - 4. Provide fire rated door assemblies with smoke and draft control rating at corridors, stairwells, and where required by applicable codes. Sizes and configurations as shown on the Drawings. Installed door assemblies shall be in accordance with door manufacturer's certified assemblies.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect wood doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in heavy duty cardboard cartons or poly bags.
- C. Handle wood doors with clean gloves. Lift and carry wood doors when moving them around the site, do not drag wood doors across one another.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until wet work , such as masonry, concrete, stone, tile, terrazzo, plastering, wallboard joint treatment, is complete and dried, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period. Do not expose doors to sudden changes in temperature such as forced heat used to dry out the site.

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 for the life of the original installation of the door. A representative of the door manufacturer shall inspect the installed doors and shall note on the warranty that no provisions of the warranty have been nullified in the manufacture and/or installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance to requirements, provide products by one of the following:
 - 1. Aspiro Series/Marshfield-Algoma, Masonite Architectural.
 - 2. Heritage Collection; VT Industries.

2.2 DOOR CONSTRUCTION

- A. General:
 - 1. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain added formaldehyde.
- B. Doors for Transparent Finish:
 - 1. Grade: Premium, with Grade AA faces.
 - 2. Face Veneer Species and Cut: Matching Architect's samples indicated in Finish Schedule on Drawings.
 - 3. Match between Veneer Leaves: Book Slip match matching Architect's samples.
 - 4. Assembly of Veneer Leaves on Door Faces: Center balance match.

5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
6. Thickness: 1-3/4 inch unless otherwise indicated.
7. Materials:
 - a. Particleboard Core Material: Complying with ANSI A208.1, Grade 1-LD-1 or 1-LD-2.
 - b. Blocking: 5-1/2 inch wide minimum top-rail blocking at doors with closers and bottom rail blocking at doors with kickplates consisting of minimum 1/2 inch wide single length structural composite lumber (SCL) outer band and single length SCL inner band.
 - c. Vertical Edges: 1-3/8 inch wide minimum prior to fitting, 2 ply laminated wood construction consisting of a single piece hardwood outer band, without fingerjoints, and an inner band of SCL. Outer band to match face veneer for transparent finished veneered-faced doors. Trim non-rated door width equally on both jamb edges.
 - d. Crossbanding: Minimum 1/16 inch thick, low density hardwood, composite, or HDF (high density fiberboard).
8. Construction: AWI Section 1300, PC-5 ME. Stiles, rails, and blocking bonded to core then entire unit abrasive planed before veneering. Crossbanding materials shall extend full width of door with grain running horizontally, tapeless spliced without voids or show through (telegraphing), and directly glued to core and blocking. Sand cross banding before application of face veneer. Face veneer shall extend full height of door with grain running vertically, tapeless spliced without voids or show through (telegraphing), and directly glued to cross band. Glue lines between face veneer, crossbanding, and blocking shall be of a type to comply with the specified warranty using the hot plate process.

C. Doors for Opaque Finish:

1. Grade: Custom.
2. Face Veneer: Minimum 3 mil thick medium-density overlay (MDO) or high density fiberboard (HDF).
3. Thickness: 1-3/4 inch unless otherwise indicated.
4. Materials:
 - a. Particleboard Core Material: Complying with ANSI A208.1, Grade 1-LD-1 or 1-LD-2.
 - b. Blocking: 5-1/2 inch wide minimum top-rail blocking at doors with closers and bottom rail blocking at doors with kickplates consisting of minimum 1/2 inch wide single length structural composite lumber (SCL) outer band and single length SCL inner band.
 - c. Vertical Edges: 1-3/8 inch wide minimum prior to fitting, 2 ply laminated wood construction consisting of a single piece hardwood outer band, without fingerjoints, and an inner band of SCL. Trim non-rated door width equally on both jamb edges.

- d. Crossbanding: Minimum 1/16 inch thick, low density hardwood, composite, or high density fiberboard (HDF).
5. Construction: AWI Section 1300, PC-5 CE. Stiles, rails, and blocking bonded to core then entire unit abrasive planed before veneering. Crossbanding materials shall extend full width of door with grain running horizontally, tapeless spliced without voids or show through (telegraphing), and directly glued to core and blocking. Sand crossbanding before application of face veneer. Face veneer shall extend full height of door with grain running vertically, tapeless spliced without voids or show through (telegraphing), and directly glued to cross band. Glue lines between face veneer, crossbanding, and blocking shall be of a type to comply with the specified warranty using the hot plate process.

D. Fire Rated Door Construction:

1. Construction: AWI Section 1300, FD-5, with particleboard or mineral core as required to provide fire rating indicated, and faced to match non-rated fire doors. Provide required label(s) on each door.
2. Blocking: For mineral-core doors, provide composite blocking, of same thickness as core, approved for use in doors of fire ratings indicated, and as follows:
 - a. 5-1/2 inch wide minimum top-rail blocking consisting of minimum 1/2 inch wide single length mill option hardwood outer band and single length lumber inner band fabricated of same materials as vertical edges.
 - b. Provide either two 4-1/2 inch by 18 inch minimum sized lock blocks on each door stile or a single 10 inch high continuous lock rail located on lockcase body centerlines.
3. Vertical Edge Construction: Provide manufacturer's standard laminated-edge construction meeting label requirements, with intumescent seals concealed by outer stile matching face veneer, and meeting or exceeding the specified direct screw withdrawal, split resistance, cycle slam, and hinge loading criteria. Finish outer bands to match door faces without joints.
 - a. Split Resistance: Not less than 696 pounds when tested in accordance with WDMA TM-5; or, not less than 1305 pounds when tested in accordance with ASTM D 143.
 - b. Cycle/Slam: Not less than 200,000 cycles with no loosening of hinge screws or other visible signs of failure when tested in accordance with the requirements of WDMA TM-7; or, not less than 502,000 cycles when tested in accordance with ANSI A151.1
 - c. Direct Screw Withdrawal: Not less than 700 pounds when tested in accordance with WDMA TM-10; or, not less than 877 pounds when tested in accordance with ASTM D 1037 using #12 x 1-1/4 steel screws, threaded to the head with either A or AB wood threads.
 - d. Hinge Loading: Not less than 684 pounds average when tested in accordance with WDMA TM-8.

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. Thickness: 1-3/4 inch unless otherwise indicated.
- E. Wood Beads for Light Openings in Wood Doors: Manufacturer's standard flush designed, solid wood, rectangular shaped, back beveled or quirked, beads matching veneer species of door faces. Include glazing compounds or tapes sized for back bevel or quirk provided. Include finish nails for removable stops sized in accordance with wood door manufacturer's recommendations.
- F. Wood-Veneered Beads for Light Openings in Fire Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire rating indicated. Include glazing compounds or tapes and concealed metal glazing clips for opening size and fire rating indicated. Include finish nails for removable stops sized as required for fire rating indicated.

2.3 FABRICATION

- A. Fabricate doors in sizes indicated for Project-site fitting.
- B. Factory fit doors to suit frame-opening sizes 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 unless otherwise indicated to match existing frame hardware preparations. Comply with final hardware schedules, door frame Shop Drawings, AWI Section 1300-G-20, BHMA A156.115-W standards, and hardware templates.
1. Coordinate measurements of hardware mortises in frames to verify dimensions and alignment before factory machining.
 2. Locate lock and latchsets in doors to match existing strike locations on existing door frames; locate hinges in doors to match hinge locations on existing door frames.
 3. Metal Astragals: Premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required. Install light beads with fasteners spaced for opening size and fire rating indicated. Install wood bead moldings with finish nails and countersink without striking bead. Fill countersunk heads with putty matching wood bead color.

2.4 SHOP PRIMING

- A. Doors for Opaque Finish: Shop prime faces and edges of doors, including cutouts, with one coat of wood primer/sealer as standard with door manufacturer. Surfaces shall be clean and dry before priming. Apply primer/sealer uniformly without bare spots, runs, or sags.

2.5 FACTORY FINISHING

- A. General: Finish doors at factory that are indicated to receive transparent finish.
- B. Grade: Premium.
- C. Finish: Manufacturer's standard finish with performance meeting or exceeding either AWI System TR-4 conversion varnish or AWI System TR-6 catalyzed polyurethane.
- D. Staining: Prepare door faces, stiles, rails, and cutouts, with toners, or stains, prior to the application of finish to match Architect's sample.
- E. Effect and Sheen: Match Architect's sample.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hardware: Apply hardware to new doors in accordance with hardware manufacturer's instructions and Section 087100 "Door Hardware." For particleboard core doors drill pilot holes of proper size for installing hinge screws. Adjust hardware items just prior to final inspection. Leave work in complete and proper operating condition.
 - 1. Factory wrapping shall be maintained on new doors during construction period, and all hardware shall be installed by cutting the factory wrapping at the mounting location of the hardware item.
- B. General Door Installation Standards: Install doors in locations indicated to comply with manufacturer's written instructions, referenced quality standard, and as indicated. Where standards conflict the more stringent shall apply.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to fire label requirements.

- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels; and to contact stops uniformly, do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Field cutting, fitting or trimming, shall be executed in a workmanlike manner. Machine doors for hardware. Seal cut and trimmed surfaces immediately after fitting and machining using clear varnish or sealer.
1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold.
 2. Comply with fire label requirements for fire-rated doors.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge, matching clearances specified for factory prefitting, and to contact stops uniformly. Field cutting, fitting or trimming, if required, shall be executed in a workmanlike manner.
1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold.
- E. Existing Wood Doors (Salvaged from Alteration Work): Install salvaged existing wood doors in locations indicated. Field cutting, fitting or trimming, if required, shall be executed in a workmanlike manner.
- F. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.
- G. Field-Finished Doors: Refer to the following for finishing requirements:
1. Section 099123 "Interior Painting."

3.2 ADJUSTING AND PROTECTION

- A. Rehang or replace doors that do not swing or operate freely.
- B. Protection: Protect wood doors to ensure that the wood door work will be without damage or deterioration at the time of Substantial Completion.
1. Refinish or replace wood doors damaged during installation. Replace any new wood doors that are warped, twisted, demonstrate core show through, are not true in plane, or cannot be refinished to the satisfaction of the Architect.

END OF SECTION

Gensler
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Issue for Bid

**CUIMC - Interventional
Radiology**
Tarrytown, New York