

**SECTION 08210
FLUSH WOOD DOORS****PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes:
1. Prefinished standard and fire rated type wood doors with flush faces.
 2. Prefit and premachine pre-finished wood doors.
- B. Related Sections:
1. Division – 1 ORGANIZATIONS & SERVICES
 - A. Section 01300 - Administrative Requirements
 - B. Section 01400 - Quality Requirements
 - C. Section 01500 - Temporary Facilities and Controls
 2. Division – 6 WOOD & PLASTICS
 - A. Section 06100 - Rough Carpentry.
 - B. Section 06405 - Architectural Woodwork.
 - C. Section 06460 - Wood Frames.
 3. Division – 8 DOORS & WINDOWS
 - A. Section 08110 - Hollow Metal Doors and Frames.
 - B. Section 08710 – Finish Hardware.
 - C. Section 08810 - Glazing: Glass and glazing for doors.
 4. Division 13 SPECIAL CONSTRUCTION
 - A. Section 13090 - Radiation Protection
 5. Division – 16 ELECTRICAL
 - A. Section 16400 - Low Voltage Distribution

1.2 REFERENCES

- A. American National Standards Institute (ANSI)
1. A115-W – 1995, WOOD DOOR HARDWARE STANDARDS Hardware Preparations.
 2. A117.1 – 1998, Accessible and Usable Buildings and Facilities.
- B. American Society for Testing and Materials (ASTM)
1. ASTM E 119-00a, Standard Test Methods for Fire Tests of Building Construction and Materials.
- C. Door and Hardware Institute (DHI)
1. Locations for architectural hardware for standard steel doors and frames, 1990.
 2. Sequence and format for the hardware schedule, January 1996.
 3. Hardware for Labeled Fire Doors, February 1993 edition.
 4. Hardware for Health Care Facilities, June 1983.
 5. Abbreviations and Symbols, September 1983.
- D. HPVA – Hardwood and Plywood Veneer Association.

- E. International Building Code (IBC 2006)
- F. National Electrical Manufacturers Association (NEMA)
- G. National Fire Protection Association (NFPA)
 - 1. NFPA-80 Standard for Fire Doors and Windows, 2007 edition.
 - 2. NFPA-80A Recommended Practice for Protection of Buildings from Exterior Fire Exposures, 2001 edition.
 - 3. NFPA-101 Life Safety Code, 2006 edition.
 - 4. NFPA-101A Guide on Alternative Approaches to Life Safety, 2001 edition.
 - 5. NFPA-101B Code for Means of Egress for Buildings and Structures, 1999 edition.
 - 6. NFPA-105 Recommended Practice for the Installation of Smoke-Control Door Assemblies, 1999 edition.
 - 7. NFPA-252 Standard Methods of Fire Tests of Door Assemblies, 1999 edition.
- H. Steel Door Institute (SDI)
 - 1. SDI-105-98 Recommended Erection Instructions for Steel Frames.
 - 2. SDI-117-93 Manufacturing Tolerances for Standard Steel Doors and Frames.
 - 3. SDI-122-99 Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
 - 4. SDI-124-98 Maintenance of Standard Steel Doors and Frames.
- I. Underwriters Laboratories (UL)
 - 1. UL 10C/UBC7-2-97 Fire Tests of Door Assemblies Positive Pressure
 - 2. UL 1784-90 Air Leakage Tests of Door Assemblies
 - 3. Door Assemblies Air Leakage Test (1784-90)
- J. Uniform Building Code (UBC):
 - 1. UBC 7-2 1997, Fire Test of Door Assemblies.
- K. Window and Door Manufacturers Association (WDMA)
 - 1. IS 1-A 2011 Industry Standard for Architectural Flush Wood Doors.

1.3 SUBMITTALS

- A. General Requirements:
 - 1. Scope of work is to provide flush wood doors in compliance with the approved shop drawings, approved finish hardware schedule and approved door and frame schedule.
 - 2. Wood doors to meet positive pressure Category A or B requirements (as required by specification)..
- B. Shop Drawings and Product Data:
 - 1. Submit in accordance with Section 01330.
 - 2. Indicate general construction, jointing methods, hardware and louver locations, and locations of cutouts for glass. Indicate thickness of veneers.
 - 3. Provide 6 copies of the approved door and frame schedule in the DHI horizontal format with shop drawings.

C. Schedules:

1. Provide door and frame schedule in the DHI horizontal format.
2. Door and frame schedule to be prepared by a CDC (Certified Door Consultant) or someone of comparable experience.

D. Product Data:

1. Provide catalog cuts of each item.

E. Samples:

1. Submit samples of wood veneer and factory finishing in accordance with WDMA Quality Standards I.S. 1-A 2011, sections G-18 and Guide Specifications 1.03 C.
2. Submit 12" x 12" corner sample of each different type of door, .i.e. PC, SCL, FD1.

F. Wiring Diagrams:

1. Provide riser diagrams for electrified hardware and coordinate with electrical.
2. Show conduit in shop drawings and reference in door and frame schedule.

G. Operations and Maintenance Data:

At date of acceptance provide owner with 1 copy of an owners Operations and Maintenance Manual. This manual is to be a 3 ring loose leaf binder with the project name and address on the front cover and spine. In this manual are to be 1 copy of the following items:

1. As Built Door & Frame Schedule.
2. As Built Shop Drawings.
3. As Built Finish Hardware Schedule.
4. Wood Door Manufacturer's Installation Instructions.
5. Section 08110 Standard Steel Doors and Frames.
6. Section 08210 Flush Wood Doors.
7. Section 08710 Finish Hardware.
8. Each related specification Section.
9. Name, address and phone number of the wood door manufacturer.
10. Name, address and phone number of the local manufacturers representative.
11. Name, address and phone number of the material supplier and contact person.
12. Manufacturers care and maintenance instructions.
13. Executed warranty (s).
14. Manufacturers Safety Data Sheets (MSDS) showing compliance to EPA requirements for lead lined doors and frames.
15. Field test data for lead lined doors and frames (to prove EPA compliance).

H. Certification:

1. Submit certification that doors and frames comply with applicable local codes.

1.4 QUALITY ASSURANCE

- A. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies in accordance NFPA 252 and which are labeled and listed for ratings indicated by ITS – Warnock Hersey, UL or other testing and inspection agency acceptable to authorities having jurisdiction.

1. Doors: Comply with UBC 7-2 1997 where required.
 2. Provide intumescent requirements in compliance with UL-10C Category A or B.
 3. Provide doors that comply with UL10C Category B and coordinate with Section 08710 for applied Category G sealing systems. (Architect to choose category A or B)
- B. WDMA I.S. 1-A 2011 Quality Standard: Window and Door Manufacturers Association Quality Standards for grade of door, core, construction, finish, and other requirements.
- C. Temperature Rise Rating: At stairwell enclosures, provide doors which have Temperature Rise Rating of 250 degrees F maximum in 30 minutes of fire exposure.
- D. Supplier Qualifications: Supplier to have a full time Certified Door Consultant (CDC) on staff or some of comparable experience. Supplier shall have warehousing and office facilities within 100 miles of project. Supplier to have been engaged in this type of business in jobsite area for 3 or more years.
- E. Certification of Label Construction:
1. Intertek Testing, Inc (WHI)
 2. Underwriters Laboratories, Inc. (UL)
 3. California State Fire Marshal (CSFM)
- F. Substitutions: Apply for substitutions in compliance with the requirements set fourth in Division 1 and no less than 10 business days prior to bid date.

1.5 DELIVERY STORAGE AND HANDLING

- A. Site Conditions: Storage area for wood doors is to be in a dried, conditioned and secure area with controlled and stabilized humidity per manufacturers recommendations.
- B. Marking and Packaging:
1. Doors to be marked per the approved door and frame schedule.
 2. Prefinished Doors to have 5 mil plastic peel coat applied to both sides.
- C. Delivery: Coordinate delivery with Installer not less than 3 weeks prior to delivery.
- D. Storage:
1. Follow the Care and Installation guidelines as described in WDMA I.S. 1-A 2011.
 2. Doors are to be stored flat and palletized with not more that 30 door leafs per pallet.
 3. Doors to be a minimum of 6" above floor while in storage.
- E. Handle doors with clean, white soft cotton gloves to prevent contamination by hand oils and dirt. Gloves are to be provided by whom ever handles doors at any given time.
- F. Handle doors per manufacturers recommendations.

1.6 GUARANTEE/WARRANTY

- A. Guarantee: Provide manufacturer's guarantee for all wood doors. Guarantee period: Lifetime of original installation. Doors exhibiting defects in materials or workmanship including warp and delamination within guarantee period shall be replaced (including hanging and finishing) with new doors. These terms shall be part of the manufacturer's standard warranty.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. American Series Flush Doors by ABS Manufacturing – 1488 Tillie Lewis Drive – Stockton, CA 95206; 4475 S. Fulton Parkway Building 6 Suite# 200 – Union City, GA 30349; Phone: (888) 454-2888; Fax (888) 454-2889
- B. Eggers Industires, Two Rivers, WI (920)793-1351
- C. Oregon Door, 477 Dillard Gardens Rd., Dillard, OR 97432 (800)-722-7269
- D. Substitutions will be considered under Section 01600 provided sample of substitution is submitted to architect along with sample of specified product and only products approved by addendum will be considered acceptable.

2.2 MATERIALS

- A. Door Construction:
1. Non-Fire Rated Doors: Thickness: 1-3/4 inches, interior flush wood, bonded, solid core conforming to WDMA I.S. 1-A 2011 and the following;
 - a. Core: bonded particle core (PC) or structural composite lumber (SCL) conforming to WDMA I.S. 1-A 2011.
 - b. Door construction shall conform to WDMA I.S. 1-A 2011 Premium Grade requirements.
 - c. Stiles: Hardwood to match face veneer over structural composite lumber (SCL), glued to core. Minimum stile thickness of 1 3/8".
 - d. Rails: Mill option hardwood or SCL. Top and bottom: minimum of 1 1/8" inches.(MDF)
 - e. Facing: Wood veneer as specified.
 - f. Acceptable manufacturers and products:

Manufacturer	PC Core	SCL Core	GP Core	EX Core
American	HD-NL	EHD-NL	STC-43	STC-45
Eggers	PC-5	SCL-5	STC-43	STC-45
Oregon	PC-5	SCL-5		

2. 20 minute Rated Doors: Thickness: 1-3/4 inches, interior flush wood, bonded, solid core conforming to WDMA I.S. 1-A 2004 and the following;
 - a. Core: bonded particle core (PC) or structural composite lumber (SCL) conforming to WDMA I.S. 1-A 2011.
 - b. Door construction shall conform to WDMA I.S. 1-A 2011 Premium Grade requirements.
 - c. Stiles: Hardwood to match face veneer over mineral composite, glued to core.
 - d. Rails: Mineral composite as required by fire door authorities. Top and bottom: as required by manufacturer's fire door authorities.
 - e. Facing: Wood veneer as specified.
 - f. Frame Applied Seals: Provide smoke seals by others as required to meet labeling requirements.

g. Acceptable manufacturers and products:

Manufacturer	20 min. PC	20 min. SCL
American	HD- 20B	EHD- 20B
American	HD- 20A	EHD- 20A
Eggers	PC-5 20B	SCL-5 20B
Eggers	PC-5 20A	SCL-5 20A
Oregon	PC-5 20B	SCL-5 20B
Oregon	PC-5 20A	SCL-5 20A

3. Fire Rated Doors: Thickness: 1-3/4 inches, interior flush wood, bonded, solid core conforming to WDMA I.S. 1-A 2004 and the following;

- a. Core: bonded mineral core (FD) conforming to WDMA I.S. 1-A 2011.
- b. Door construction shall conform to WDMA I.S. 1-A 2011 Premium Grade requirements.
- c. Stiles: Hardwood to match face veneer over mineral composite, glued to core.
- d. Rails: Mineral composite as required by fire door authorities. Top and bottom: as required by manufacturer's fire door authorities.
- e. Facing: Wood veneer as specified.
- f. Frame Applied Seals: Provide Category G seals by others as required to meet labeling requirements.

g. Acceptable manufacturers and products:

Manufacturer	FD 3/4	FD1	FD 1 ½
American	MC 45B	MC 60B	MC 90B
American	MC 45A	MC 60A	MC 90A
Eggers	FD-45B	FD-60B	FD-90B
Eggers	FD-45A	FD-60A	FD-90A
Oregon	FD-45B	FD-60B	FD-90B
Oregon	FD-45A	FD-60A	FD-90A

B. WOOD VENEER

1. Door face veneers shall meet HPVA "A" grade quality standards conforming to WDMA I.S. 1-A for transparent or semi-transparent finish. Minimum face veneer thickness shall be 1/42" at 12% moisture content after finish sanding.
2. Species: Red Oak. (*specify*)
3. Face Cut: Plain Sliced / Rotary / Rift Cut / Quarter Sliced / Flat Cut. (*specify*)
4. Face Assembly: Book Match / Slip Match / Random Match. (*specify*)
5. Face Symmetry: Running Match / Balanced Match / Center Balanced Match. (*specify*)

C. ADHESIVES

1. Adhesives: Face to core adhesives shall be Type I. Adhesives must be classified Type I per WDMA TM-6 "Adhesive Bond Test Method."

D. CORE

1. Non-rated and 20 minute doors: Solid particleboard ANSI 208.1-LD-2, SCL, or Agri-Fiber ANSI 208.1-LD-1.
2. Fire-rated doors: Non-combustible mineral core containing no asbestos.

2.3 FACTORY FINISHING

1. Comply with referenced WDMA Section G-15, "Factory Finishing."
2. Pre-finish wood doors at factory.
3. Transparent Finish: Match finish indicated in WDMA Section G-17: WDMA System #6.

2.4 ACCESSORIES

A. Metal Louvers:

1. General: Provide Minimum 18 gauge louver frame with minimum 22 gauge louver blades. Louver blades to be sight proof inverted Y type. Provide galvanized insect screen at exterior locations. At exterior and wet areas provide A60 or G60 louvers.
2. Non-rated doors: Provide Anemostat, Air Louvers, All Metal Stamping
3. Fire-rated Doors: Provide fusible link louver by Anemostat, All Metal Stamping, Air Louvers.
4. Fasteners: Provide manufacturers standard mechanical fasteners. Exposed fasteners to be on secure side of door.

B. Wood Vision Frames:

1. General: Wood, of the same species/compatible with door species
2. Non-Rated: W9 Flush/W7 Lip beading wood of the same species/compatible with door species.
3. Fire-Rated:

C. Metal Vision Frames:

1. General: Provide minimum 20 gauge vision frames that protrude no more than 5/64" over face of frame. At exterior and wet areas provide A60 or G60 vision frames.
2. Non-rated doors: Provide Anemostat, Air Louvers, All Metal Stamping metal vision frame.
3. Labeled Doors: Provide Anemostat, Air Louvers, All Metal Stamping metal vision frame with glazing tape.
4. Fire-rated doors: ITS – Warnock Hersey or UL approved glazing system.
5. Glass: Refer to Section 08810 for glass types and thickness.
6. Fasteners: Provide manufacturers standard mechanical fasteners. Exposed fasteners to be on secure side of door.

2.5 FABRICATION

- A. Fabricate wood doors in accordance with requirements of WDMA I.S. 1-A 2011 Quality Standards.
- B. Fabricate fire rated doors in accordance with requirements of ITS – Warnock Hersey, Underwriters' Laboratories, or California State fire Marshall with metal label on each door including UL-10C.
- C. Provide blocking for hardware per hardware manufacturers requirements for hardware to be installed without thru-bolts on all mineral core doors where locks, closers, panics and or kick plates are installed.
- D. Fabricate doors with WDMA Quality Standards hardware blocking options as follows:
 1. Provide HB-1 – head and HB-2 – sill rails and HB-4 – lock block on all doors.
 2. Provide HB-6 only when exit devices are specified for door.
 3. Provide HB-8 for pivots or when floor bolts are specified under Section 08710 – Finish Hardware.
- E. Non-rated and 20-minute rated shall have vertical edges that shall be veneer banded stiles (or) optional 2-ply solid wood 7/16 prior to bevel.
- F. Make cutouts and provide stops for glass and louvers. Install metal door louvers. Seal cut-outs prior to installation of moldings.
 1. For full light doors: Provide cut out from flush wood door, with vertical grain direction.

- G. Bevel lock and hinge edges of single acting doors 3 degrees or 1/8 inch in 2 inches. Radius strike edge of double acting swing doors as required by pivot hinge manufacturer.
- H. Prepare doors to receive hardware. Refer to Section 08710 - Hardware and NFPA 80 for hardware requirements including UL-10C.
 - 1. Prefit and bevel to net opening size less approximately 1/4 inch in width on single swing doors 3/16" inch in width for paired doors. Provide clearance based on NFPA-80 allowable clearances above finished floor, unless otherwise indicated on drawings. Provide 1/8 inch clearance at top of door.
 - 2. Slightly ease vertical edges.
 - 3. Predrill pilot holes for all butt hinge mortise preps.
- I. Fire Rated Pair of Doors; greater than 20 minute: Supply overlapping astragals or metal edge sets only as required by NFPA 80 1999 or by door manufacturer's fire door authorities. If an astragal is required, to comply with fire rated labeling requirements for pairs of fire rated doors, provide door manufacturer's standard tested astragal as required. No Metal Edges or astragal required for 20-minute rated pairs.

2.6 SOURCE QUALITY CONTROL

- A. Inspect doors prior to shipment, any doors that are damaged, not machined properly or defective shall be repaired to manufacturers quality standards for new doors or be replaced prior to shipment.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine installed door frames before hanging doors and notify the general contractor of any or all discrepancies.
- B. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Inspect jobsite to ensure a dry and secure area that meets manufacturers storage recommendations is available and ready to receive the doors prior to delivery of doors.

3.2 PREPARATION

Prior to delivery of wood doors, and while wood doors are being stored, the storage area shall:

- A. Be free of all trash and debris.
- B. Meet manufacturer's recommendations for storage of wood doors.
- C. Be conditioned and have stabilized humidity control.

3.3 INSTALLATION

- A. Handle doors in accordance with recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."
- B. Condition doors to average temperature and humidity in area of installation for not less than 48 hours prior to installation. Store doors per recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."
- C. Install in neat and workmanlike manner, free from hammer or tool marks, open joints or slivers.
- D. Set plumb, level, square and true. Install doors after building humidity is at acceptable level.
- E. Remove and replace all warped, twisted, bowed, or otherwise damaged doors. Do not install doors that cannot be properly fitted to frames.
- F. Adjust prefinished doors and hardware and other moving or operating parts to function smoothly and correctly.
- G. If doors are to be field finished, the process must follow the WDMA I.S. 1-A, "Care and Handling at Job Site" instructions for field applied finishes.
- H. Ensure that smoke gaskets are in-place before prefinished door installation.
- I. Ensure that all seals and gaskets are in-place before STC door installation.
- J. Protect the work of other trades damage from the installation of doors and frames.
- K. Install doors in accordance with the following:
 - 1. Manufacturers instructions, recommendations and tolerances.
 - 2. NFPA-80
 - 3. SDI-105
 - 4. Approved Finish Hardware Schedule
 - 5. Approved Door and Frame Schedule
 - 6. Approved Shop Drawings
 - 7. All applicable codes and requirements

3.4 FIELD QUALITY CONTROL

- A. Lead lined openings are to be field tested by a certified independent testing agency. Any problems are to be corrected prior to the field inspection.
- B. Test all openings with electrified hardware after installation to ensure proper operation.
- C. Manufacturer's representative to inspect the jobsite upon substantial completion and provide a written report on any problems on the project. Provide 1 copy of this report to the material supplier, general contractor, architect, installer and the owner.
- D. All discrepancies listed in the report are to be corrected prior to final acceptance.

3.5 ADJUSTING AND CLEANING

Prior to final acceptance and at no additional cost to owner:

- A. Adjust doors to meet required tolerances.:
- B. General Contractor to clean doors per manufacturers instructions to be free from all foreign materials.
- C. Repair damaged doors per manufacturers instructions and guidelines.
- D. Replace damaged doors that cannot be repaired to the manufacturers standards of quality.
- E. Replace defective doors.

3.6 DEMONSTRATION

- A. Demonstrate and explain the operation of automatic doors to the building maintenance director and chief engineer prior to final acceptance.

3.7 PROTECTION

- A. Keep poly bags on doors until date of acceptance.
- B. Protect doors from damage by other trades.
- C. Keep area around doors free from trash and debris.
- D. At unfinished and clear finished doors, do not partially cover door surfaces with paper, cardboard, or any other opaque covering that will create uneven aging of wood veneer.
- E. Protect doors as directed under Section 01700.

END OF SECTION