

## **SECTION 08 16 00 COMPOSITE MDF DOORS SIMULATED STILE AND RAIL**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Drawings and general provisions of the Contract, including, General and Supplementary Conditions and Division 1 Specification sections, apply to the work specified in this section.
- B. Section Includes:
  - 1. Standard and fire rated type wood doors with simulated panels.
  - 2. Prefit and premachine simulated stile and rail wood doors.
  - 3. MDF and Bifold, Bypass, and Pocket doors
  - 4. Factory Primed Doors
- C. Related Sections:
  - 1. Division – 1 ORGANIZATIONS & SERVICES
    - A. Section 01 30 00 - Administrative Requirements
    - B. Section 01 40 00 - Quality Requirements
    - C. Section 01 50 00 - Temporary Facilities and Controls
  - 2. Division – 6 WOOD & PLASTICS
    - A. Section 06 10 00 - Rough Carpentry.
    - B. Section 06 40 50 - Architectural Woodwork.
    - C. Section 06 46 00 - Wood Frames.
  - 3. Division – 8 DOORS & WINDOWS
    - A. Section 08 11 00 - Hollow Metal Doors and Frames.
    - B. Section 08 21 00 – Flush Wood Doors.
    - C. Section 08 71 00 – Finish Hardware.
    - D. Section 08 81 00 - Glazing: Glass and glazing for doors.
  - 4. Division - 16 ELECTRICAL
    - A. Section 16 40 00 Low Voltage Distribution
  - 5. Division – 28 Electronic Safety and Security
    - A. Section 28 14 00 – Access Control System Hardware
    - B. Section 28 15 00 – Access Control Hardware Devices

#### **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.
  - 3. A208.1 – 2016, Composite Panel Association for Particle Board
- B. American Society for Testing and Materials (ASTM)
  - 1. ASTM E 119-00a, Standard Test Methods for Fire Tests of Building Construction and Materials.
  - 2. ASTM E 90-09, 2016 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
  - 3. ASTM E 413-16, Classification for Rating and Sound Insulation
- C. Door and Hardware Institute (DHI)
  - 1. Locations for architectural hardware for standard steel doors and frames, 1996.
  - 2. Sequence and format for the hardware schedule, January 2001.
  - 3. Hardware for Labeled Fire Doors, February 1993 edition.
  - 4. Hardware for Health Care Facilities, June 1993.
  - 5. Abbreviations and Symbols, September 2001.
- D. HPVA – Hardwood and Plywood Veneer Association.
- E. International Building Code (IBC 2015)
- F. National Electrical Manufacturers Association (NEMA)
- G. National Fire Protection Association (NFPA)
  - 1. NFPA-80 Standard for Fire Doors and Windows, 2016 edition.

2. NFPA-80A Recommended Practice for Protection of Buildings from Exterior Fire Exposures, 2017 edition.
  3. NFPA-101 Life Safety Code, 2015 edition.
  4. NFPA-101A Guide on Alternative Approaches to Life Safety, 2013 edition.
  5. NFPA-101B Code for Means of Egress for Buildings and Structures, 2002 edition.
  6. NFPA-105 Recommended Practice for the Installation of Smoke-Control Door Assemblies, 2016 edition.
  7. NFPA-252 Standard Methods of Fire Tests of Door Assemblies, 2017 edition.
- H. Steel Door Institute (SDI)
1. SDI-105-17 A250 11-12 Recommended Erection Instructions for Steel Frames.
  2. SDI-117-13 Manufacturing Tolerances for Standard Steel Doors and Frames.
  3. SDI-122-15 Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
  4. SDI-124-16 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 1A - 2013 Industry Standard for Architectural Wood Doors.

### 1.3 SUBMITTALS

- A. General Requirements:
1. Scope of work is to provide simulated stile and rail 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 and B requirements.
- B. Shop Drawings and Product Data:
1. Submit in accordance with Section 01 33 00.
  2. Indicate general construction, jointing methods, hardware and louver locations, and locations of cutouts for glass if required.
  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 an AHC (Architectural Hardware Consultant), or CDC (Certified Door Consultant) or someone of comparable experience.
- D. Product Data:
1. Provide minimum of 3 catalog cuts of each item.
- E. Samples:
1. Submit 12" x 12" corner sample of each different type of door, i.e. Infinity RM, FM, Encore Advantage Molding, Ogee Molding, Ovation Round Molding, Square Molding, No Molding, and Corresponding Panel, Raised, Flat.
- F. 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. Door Manufacturer's Installation Instructions.
  5. Each related specification Section.
  6. Name, address and phone number of the simulated stile and rail door manufacturer.
  7. Name, address and phone number of the local manufacturers representative.
  8. Name, address and phone number of the material supplier and contact person.

9. Manufacturers' care and maintenance instructions.
- G. Certification:
  1. Submit certification that doors and frames comply with UBC 7-2 1997.

## 1.4 QUALITY ASSURANCE

- A. Fire-Rated Simulated Stile and Rail 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. Comply with UL-10C Category A and Category B.
  3. Doors with surface mounted hardware shall be internally blocked to avoid the use of thru-bolts.
- B. Sliding Doors: Provide doors with internal reinforcement to ensure specified hardware mounts in wood.
- C. Temperature Rise Rating: At stairwell enclosures, provide doors that have Temperature Rise Rating of 250 degrees F maximum in 30 minutes of fire exposure.
- D. Supplier Qualifications: Supplier to have a full time AHC, or CDC on staff or someone of comparable experience. Supplier to have been engaged in this type of business for 3 or more years.
- E. Certification of Label Construction:
  1. Warnock Hersey, Inc (WH)
  2. Underwriters Laboratories, Inc. (UL)
- F. Substitutions: Apply for substitutions in compliance with the requirements set fourth in Division 1, Section 01 25 00 and no less than 10 business days prior to bid date.

## 1.5 DELIVERY STORAGE AND HANDLING

- A. Site Conditions: Storage area for simulated stile and rail wood doors is to be in a dried, well ventilated, conditioned and secure area with controlled and stabilized humidity per manufacturer's published and listed recommendations.
- B. Marking and Packaging:
  1. Doors to be marked per the approved door and frame schedule.
  2. Doors with Infinity, Architectural or Designer Moldings and Ovation Raised Moldings to be individually shrink wrapped with cardboard protective edges running the length of the stiles and then palletized, cardboard shall be thicker than height of molding.
  3. Encore Doors to be palletized and shrink wrapped
  4. Ovation Doors to be palletized and shrink wrapped.
  5. Bravo Doors to be palletized and shrink wrapped.
- C. Delivery: Coordinate delivery with Installer not less than 3 weeks prior to delivery.
- D. Storage:
  1. Follow the manufacturer's published and listed Care and Installation guidelines.
  2. Store Doors flat and palletized with not more that 20 door leafs per pallet.
  3. Doors to be a minimum of 6" above floor while in storage.
  4. Store Doors on a level surface.
  5. Cover doors to keep clean and avoid discoloration with an opaque covering that does not permit light to penetrate. Cover must allow air circulation.
- E. Handle doors with clean, white soft cotton gloves to prevent contamination by hand oils and dirt. Gloves are to be provided by whoever handles doors at any given time.
- F. Do not drag doors across one another or across other surfaces.
- G. Handle doors per manufacturers' recommendations.

## 1.6 GUARANTEE/WARRANTY

- A. Guarantee: Provide manufacturer's guarantee for all simulated stile and rail wood doors. Guarantee period:

1. On Infinity, Encore, Ovation, and Bravo Lifetime on interior applications.
  2. On Specialty Products such as Louver, Chalkboard, Dry Erase, Glass, Mirror, and Arched/Radius ten year (10) on interior applications.
- Doors exhibiting defects in materials or workmanship including warp and delamination within guarantee period shall be replaced with new doors.

## **PART 2 PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURER**

- A. ABS Manufacturing – 8360 Elder Creek Road – Sacramento, CA 95828; Phone: (888) 454-2888; Fax: (888) 454-2889 - Wally Berry (951) 316-3674
- B. Substitutions will be considered under Section 01 25 00 provided sample of substitution is submitted to architect along with sample of specified product for comparison. Only those products specifically approved by addendum will be considered acceptable.

### **2.2 MATERIALS**

- A. Millennium MDF Infinity Doors with Molding:
  1. Door Construction: 1/8" primed MDF over 28 lb. minimum particleboard core. Provide 1" softwood stiles, 2 1/4" full bound wood top and bottom rails. Furnish 1 3/4" thick doors.
  2. Molding: Furnish only premium MDF (Medium Density Fiberboard) molding in profile indicated below. Bond molding into a precision-machined cavity created by CAD driven numerically controlled routing equipment. Provide the following molding profile(s):
  3. Specifier to select one or more designs;
    - A. Infinity Molding Profile, 1000RM Series
    - B. Infinity Flush Molding Profile 1000FM Series
    - C. Architectural Molding Profile 2000ARM Series
    - D. Architectural Flush Molding Profile 2000AFM Series
    - E. Designer Molding Profile 2000DRM Series
    - F. Designer Flush Molding Profile 2000DFM Series
  4. Adhesive: Use only moisture resistant Type 1 glue in the internal construction of the door.
  5. Door Construction for 90-Minute 1-3/4" Doors: Provide 9/16" premium grade primed MDF (Medium Density Fiberboard) over 5/8" Palusol Intumescent core. Edge banded MDF vertical stiles.
- B. Fire Rated Millennium MDF Doors with and without Molding
  1. Doors to comply with UL-10C, Category A or B. Attach proper fire label to door.
  2. Door construction to be manufacturer's standard construction for fire rated doors to comply with necessary test procedures and codes.
  3. Shall be blocked appropriately for surface mounted hardware, thru-bolt is not allowed.
  4. Provide the following molding profile(s) on the fire rated doors:
  5. Specifier to select one or more designs:
    - A. Infinity Molding Profile [20-Minute, 45-Minute, 60-Minute, 90-Minute] 1000 Series
    - B. Plant-On Infinity Molding Profile [90-Minute] 1000 Series
    - C. Architectural Molding Profile [20-Minute] 2000A Series
    - D. Plant-On Architectural Molding Profile [45-Minute, 60-Minute, 90-Minute] 2000A Series
    - E. Designer Molding Profile [20-Minute] 2000D Series
    - F. Encore [20-Minute, 90-Minute] 6000 Series
    - G. Ovation [20-Minute, 90-Minute] 7000 Series
    - H. Bravo [20-Minute] 4000 Series
- C. Millennium Encore Doors
  1. Door Construction for 1 3/4" Doors: Provide 1/2" premium grade primed MDF (Medium Density Fiberboard) over 3/4" EPS foam core. Furnish 1-3/8" Wood Stiles on each vertical edge precision routed into and sandwiched between the MDF skins.

2. Door Construction for 1-3/8" Doors: Provide 3/8" premium grade primed MDF (Medium Density Fiberboard) over 5/8" EPS foam core. Furnish 1-3/8" Wood Stiles on each vertical edge precision routed into and sandwiched between the MDF skins.
  3. Door Construction for 20-Minute 1 3/4" Doors: Provide 7/8" premium grade primed MDF (Medium Density Fiberboard) skins. Furnish 1-3/8" Wood Stiles on each vertical edge precision routed into and sandwiched between MDF skins.
  4. Door Construction for 90-Minute 1-3/4" Doors: Provide 9/16" premium grade primed MDF (Medium Density Fiberboard) over 5/8" Palusol Intumescent core. Edge banded MDF vertical stiles.
  5. Adhesive: Use only moisture resistant Type 1 glue in the internal construction of the door.
- D. Millennium Ovation Doors
1. Door Construction for 1-3/8" Flat Panel Doors: 11/16" Premium grade primed MDF (Medium Density Fiberboard) skins which are sandwich 3/8" MDF board panels. Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins.
  2. Door Construction for 1-3/4" Flat Panel Doors: 7/8" Premium grade primed MDF (Medium Density Fiberboard) skins which are sandwiched 3/8" MDF board panels. Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins.
  3. Door Construction 1-3/8" Raise Panel Doors: 11/16" Premium grade primed MDF (Medium Density Fiberboard) skins which sandwich individual raised panels in one of the following panel thickness – 9/16", 7/8", or 1-1/4". Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins.
  4. Door Construction 1-3/4" Raise Panel Doors: 7/8" Premium grade primed MDF (Medium Density Fiberboard) skins which sandwich individual raised panels in one of the following panel thickness – 9/16", 7/8", or 1-1/4". Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins.
  5. Door Construction 1-3/4 20-Minute Fire Rated Doors: 7/8" Premium grade primed MDF (Medium Density Fiberboard) skins which sandwich individual raised panels of 1" or 1-1/4" thickness or individual Flat Panels of 11/16" thickness. Category B provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins. Category A provide 1" Hardwood stiles with built in intumescent strip on each vertical edge precision routed into and sandwiched between the MDF skins and 1" Hardwood top rail with built in intumescent strip.
  6. Door Construction 1-3/4" 90-Minute Fire Rated Doors: 9/16" Premium grade primed MDF (Medium Density Fiberboard) skins which are sandwiched with 5/8" Palusol Intumescent Flat Panels. Edge Banded MDF vertical stiles.
  7. Adhesive: Use only moisture resistant Type 1 glue in the internal construction of the door.
- E. Millennium Bravo Doors
1. 1. Door construction for 1-3/8" Flat Panel Doors: 11/16" Premium grade primed MDF (Medium Density Fiberboard) skins which are sandwich 3/8" MDF board panels. Provide 1" Fir Stiles on each inner and outer vertical edge precision routed into and sandwiched between the MDF skins. Stiles and rails assembled with dowel construction.
  2. Door Construction for 1-3/4" Flat Panel Doors: 7/8" Premium grade primed MDF (Medium Density Fiberboard) skins which are sandwiched 11/16" MDF board panels. Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins. Stiles and rails assembled with dowel construction.
  3. Door Construction 1-3/8" Raise Panel Doors: 11/16" Premium grade primed MDF (Medium Density Fiberboard) skins which sandwich individual raised panels in one of the following panel thickness – 11/16" or 1". Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins. Stiles and rails assembled with dowel construction.
  4. Door Construction 1-3/4" Raise Panel Doors: 7/8" Premium grade primed MDF (Medium Density Fiberboard) skins which sandwich individual raised panels in one of the following panel thickness – 1" or 1-1/4". Provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins. Stiles and rails assembled with dowel construction.
  5. Door Construction 1-3/4 20-Minute Fire Rated Doors: 7/8" Premium grade primed MDF (Medium Density Fiberboard) skins which sandwich individual raised panels of 1-1/4" thickness or individual Flat Panels of 11/16" thickness. Category B provide 1" Fir Stiles on each vertical edge precision routed into and sandwiched between the MDF skins. Stiles and rails assembled with dowel construction.

6. Adhesive: Use only moisture resistant Type 1 glue in the internal construction of the door.
- F. Smoke Control Doors
1. Doors to comply with UL 1784-90 Air Leakage Tests of Door Assemblies. Attach secondary smoke label to door.
  2. Frame Applied Seals: Provide smoke seals by others as required to meet labeling requirements.
- G. Door Design
1. Provide Millennium Design # \_\_\_\_\_ on all doors.
  2. Provide Millennium Design # \_\_\_\_\_ on corridor side of door, and Millennium Design # \_\_\_\_\_ on room side of door (Bravo not available in this option).

## 2.3 ACCESSORIES

- A. Mirror Option:
1. Millennium Hardboard Doors: Provide 1/8" category 2 safety backed mirror panel bonded directly to skin of the door. Furnish decorative raised mirror molding to match molding used on other hardboard doors.
  2. Millennium Encore Doors: Provide 1/8" category 2 safety backed mirror panel bonded directly to door. Mirror to sit flush with face of door.
  3. Door Design
    - a. Provide mirror on both sides of door.
    - b. Provide mirror on one side of door and Millennium Design # \_\_\_\_\_ on other side of door (Bravo not available with this option).
- B. Louver Option
1. Provide 3/16" thick x 2-1/8" wide primed MDF slat blade.
  2. Louvers shall have a full 2" exposed face after fitted in door.
  3. Provide as false or ventilated design; (Specify)
  4. Louver shall be an integral part of the door core.
  5. Applied stops are not allowed on Ovation series.
  6. Encore and Bravo not available with this option.
- C. Magnetic Chalk and/or Dry-Erase Board Option:
1. Millennium Hardboard Doors: Provide 1/8" magnetic Chalkboard, Dry-Erase Board (Specify) panel bonded directly to skin of the door. Furnish decorative raised molding to match molding used on other hardboard doors.
  2. Millennium Encore Doors: Provide 1/8" magnetic Chalkboard, Dry-Erase Board (Specify) panel bonded directly to door. Chalk/Dry-Erase to sit flush with face of door.
  3. Door Design
    - a. Provide Chalk/Dry-Erase Board on both sides of door. (Specify)
    - b. Provide Chalk/Dry-Erase Board (Specify) on one side of door and Millennium Design # \_\_\_\_\_ on other side of door (Bravo not available with this option).
- D. Fixed Lite Option:
1. General: Provide 1/4" tempered glass installed in place of panel design. For Ovation, lite shall be sandwiched between the two outer faces of MDF. The glass shall be an integral part of the door core.
  2. Refer to door elevations and details on plans.
  3. General: Provide 1/4" Tempered White Laminated Glass installed in place of panel design.
  4. Applied stops not allowed on Ovation and Bravo series.
  5. Encore not available with this option.

## 2.4 FABRICATION

- A. Fabricate wood doors in accordance with requirements of WDMA I.S. 1 - 1997 Quality Standards.
- B. Fabricate fire rated doors in accordance with requirements of ITS – Warnock Hersey or Underwriters' Laboratories, 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. Wood top rail required for sliding door hardware.
- D. Factory prime doors for field finish.

- E. Bevel lock and hinge edges of single acting doors 3 degrees or 1/8 inch in 2 inches.
- F. 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 1/4 inch clearance above finished floor, unless otherwise indicated on drawings. Provide 1/8 inch clearance at top of door.
  - 2. Slightly ease vertical edges.
  - 3. Bottom Rail to remain full 10" face after under-cut in compliance with ANSI/ICC A117.1
- G. 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.

## 2.5 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

- F. Examine installed door frames before hanging doors.
- G. When installing in existing door frames, verify the following requirements for new door comply in the areas of; width, height, swing, and hardware locations to seamlessly install new doors.
- H. Verify that frames comply with indicated requirements for type, size, location, and swing
- I. Characteristics and have been installed with plumb jambs and level heads.
- J. Proceed with installation only after unsatisfactory conditions have been corrected.
- K. Inspect jobsite to ensure a dry and secure area that meets manufacturers' published 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 manufacturers' 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. 1A, "Care and Installation at Jobsite."
- 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. 1A, "Care and Installation at Jobsite."
- 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 doors and hardware and other moving or operating parts to function smoothly and correctly.
- G. The field finishing process must follow the WDMA I.S. 1A, "Care and Handling at Job Site" instructions for field applied finishes.
- H. Protect the work of other trades damage from the installation of doors and frames.
- I. Install doors in accordance with the following:
  - 1. Manufacturer's 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 CARE AND FINISHING

- A. Finish doors in accordance with door manufacturer's published Care and Finishing instructions.
- B. All six sides of door must be sealed as published and listed in manufacturers Care and Finish instructions.

### 3.5 ADJUSTING AND CLEANING

- A. Prior to final acceptance and at no additional cost to owner:
  - 1. Adjust doors to meet required tolerances.
  - 2. General Contractor to clean doors per manufacturers published instructions to be free from all foreign materials.
  - 3. Repair damaged doors per manufacturer's instructions and guidelines.
  - 4. Replace damaged doors that cannot be repaired to the manufacturer's standards of quality.
  - 5. Replace defective doors.

### 3.6 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. Protect doors as directed under Section 01 76 00.

**END OF SECTION**