

Section 08210 (08 14 23)  
Impact Resistant Doors (FLUSH)

**PART 1- GENERAL**

**1.1 SCOPE**

- A. All labor, material, equipment, and related services necessary to furnish and install all high impact resistant non-rated and fire-rated Acrovyn® Door Systems doors with flush faces as shown on the drawings or specified herein.

**1.2 RELATED SECTIONS**

- A. Related Sections include the following:
1. Division 8 Section 08110 (08 11 13) Metal Doors and Frames
  2. Division 8 Section 08110 (08 12 17) Prefinished Steel Door Frames
  3. Division 8 Section 08710 (08 71 00) Finish Hardware
  4. Division 8 Section 08800 (08 00 00) Glazing

**1.3 REFERENCE STANDARDS**

- A. ASTM E152 - Methods of Fire Tests and Door Assemblies  
B. NFPA 252 Standard methods of fire tests of door assemblies, National Fire Protection Association  
C. UL-10C Positive Pressure fire tests of door assemblies, Underwriters Laboratories, Inc.  
D. NFPA 80 Fire Doors and Windows  
E. NFPA 101 Life Safety Code, National Fire Protection Association  
F. CARB Emission Standards Section 93120.2 (a), California Air Resources Board  
G. GGHC Title EP 4.1 PBT Elimination: Dioxins, Green Guide for Health Care Version 2.2 2007  
H. Quality Test Standards:
1. WDMA Industry Standard I.S.1A-04
    - a. WDMA TM-7 Test method to determine the physical endurance of wood doors & associated hardware connections under accelerated operating conditions, Window and Door Manufacturers Association
    - b. WDMA TM-8 Test methods to determine hinge loading resistance of wood door stiles, Window and Door Manufacturers Association
    - c. WDMA TM-10 - Test method to determine the screw holding capacity of wood door stiles, Window and Door Manufacturers Association
  2. WDMA I.S. 10-05 Industry Specification for Testing Cellulosic Materials for Use in Fenestration Products
  3. ANSI/BHMA A156.115-W-2006 American National Standard for Hardware Preparation in Wood Doors with Wood or Steel Frames
  4. FSC - Forest Stewardship Council

#### **1.4 SUBMITTALS**

- A. Submit in accordance with Section 013323 Shop Drawings, Product Data, and Samples
- B. Product Data: For each type of door, submit manufacturer's data sheets including details of core and edge construction.
- C. Shop Drawings: Submit complete schedule indicating location, size, hardware sets, swing of each door; elevation of each type of door and construction details not covered in product data and other pertinent information. Indicate dimensions and locations of mortises and holes for hardware, fire ratings, and location of cutouts for glass.
- D. Samples for verification of edge protection. Banded edges will not be approved.
- E. Certification: Submit certification that doors and frames comply with UL10c, Positive Pressure Fire Door Test Method.
- F. Manufacturer's lifetime warranty.

#### **1.5 QUALITY ASSURANCE**

- A. Source Limitations: Obtain high impact resistant Acrovyn Door Systems flush doors through one source from a single manufacturer.
- B. Quality Standard: Comply with WDMA Industry Standard (I.S. 1A-04 "Architectural Wood Flush Doors").
  - 1. Doors shall meet performance attributes for the following performance duty level: Extra Heavy Duty.
  - 2. Tolerances for warp, telegraphing, squareness and prefitting dimensions as per the latest edition of WDMA I.S.1A-04.
- 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 UBC Standard 7-2, UL-10C Positive Pressure and NFPA 252.
- D. Doors or trial doors of the type specified herein should be installed in an existing facility for over 6 months to verify quality and durability performance of product.

#### **1.6 DELIVERY, STORAGE, HANDLING AND SITE CONDITIONS**

- A. Deliver, store, protect and handle products under guidelines of WDMA and manufacturer's care and handling instructions.
- B. Package doors individually using foam interleaf and stack on pallet, not exceeding 15 doors per pallet.
- C. Mark each door with opening number used on shop drawings.
- D. Accept doors on site in manufacturer's standard packaging. Inspect for damage.
- E. Do not store doors in damp or wet areas. HVAC systems should be operating and balanced prior to arrival of doors. Acceptable humidity shall be no less than 25% or greater than 55%.
- F. Do not subject doors to extreme conditions or changes in heat, dryness or humidity in accordance with the latest edition of WDMA I.S.1A-04.
- G. Protect doors from exposure to natural and artificial light after delivery.

- H. Doors should be lifted and carried when being moved, not dragged across one another.

#### **1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not deliver store, 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. HVAC systems should be operating and balanced prior to arrival of doors. Acceptable humidity shall be no less than 25% or greater than 55%. Note: Any claim for warp, bow, twist, or telegraphing may be denied if required humidity requirements are not maintained.

#### **1.8 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship. Conditions are subject to the terms set forth in the manufacturer's warranty.
1. Solid-Core Interior Doors: provide manufacturer's limited lifetime written warranty guarantee against warpage, delamination and defects in materials and workmanship.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURER**

- A. Subject to compliance with all requirements, provide one of the following:
1. To establish a standard of quality, design and function required, drawings and specifications are based on Construction Specialties, Inc. Acrovyn® Door Systems (800) 972-7214 - no substitutions.

#### **2.2 MATERIALS**

- A. Door Construction
1. Non Fire Rated Doors and 20-minute interior flush doors conforming to WDMA I.S.1A-04 and the following:
- a. Thickness: 1-3/4" (+/- 1/16")
- b. Core: Solid. Interior stiles and rails bonded. Tops and bottoms factory sealed with an approved sealer to prevent moisture intrusion.
- A.1.b.1. FSC Certified Particleboard grade LD-2, 32 lb/ft<sup>3</sup> density - no added urea formaldehyde content, CARB Phase I compliant
- c. Crossbanding: FSC certified
- d. Replaceable door stiles: 3/4" replaceable stiles shall be field replaceable if ever damaged by impact.
- e. Replaceable door edges: Fully wrapped and rounded Acrovyn or stainless steel door edges shall be field replaceable, exclusive of fasteners to improve appearance.
- f. WDMA I.S.1A-04 Performance Duty Level: Extra Heavy Duty

- g. Durability Performance: Cycle Slam WDMA TM-7, 1990 Extra Heavy Duty- 2,000,000 cycles to insure durability of entire door construction
- 2. 45 and 60-minute interior flush fire rated doors conforming to WDMA I.A. 1-A and the following:
  - a. Thickness: 1-3/4" (+/- 1/16")
  - b. Cores: Solid. Interior stiles and rails bonded. Non-combustible mineral composite, 25-32 lb/ft<sup>3</sup> density- no added urea formaldehyde content. Tops and bottoms factory sealed with an approved sealer to prevent moisture intrusion.
  - c. Crossbanding: FSC certified
  - d. Replaceable door stiles: 3/4" replaceable stiles shall be field replaceable if ever damaged by impact.
  - e. Replaceable door edges: Fully wrapped and rounded Acrovyn or stainless steel door edges shall be field replaceable, exclusive of fasteners to improve appearance.
  - f. WDMA I.S.1A-04 Performance Duty Level: Extra Heavy Duty
  - g. Durability Performance: Cycle Slam WDMA TM-7, 1990 - 1,000,000 cycles to insure durability of entire door construction
- 3. 90-minute interior flush fire rated doors conforming to WDMA I.S.1A-04 and the following:
  - a. Thickness: 1-3/4" (+/- 1/16")
  - b. Core: Solid. Interior stiles and rails bonded, non-combustible mineral composite construction 25-32 lb/ft<sup>3</sup> density - no added urea formaldehyde content. Tops and bottoms factory sealed with an approved sealer to prevent moisture intrusion.
  - c. Crossbanding: mineral composite
  - d. Door edges: Rounded, fixed Acrovyn or stainless steel door edges shall be exclusive of fasteners to improve appearance.
  - e. WDMA I.S.1A-04 Performance Duty Level: Extra Heavy Duty
  - f. Durability Performance: Cycle Slam WDMA TM-7, 1990 - 1,000,000 cycles to insure durability of entire door construction.

B. Door Faces

- 1. Door faces to be PVC-Free high impact resistant engineered Acrovyn 4000 finish containing no persistent bio-accumulative toxicants (PBTs). See plan for color.
- 2. Face material base color must be integral throughout to eliminate discoloration caused by scratching.
- 3. Face Veneer Wear Index - Abrasion Resistance Testing - ASTM D4060-90: 28,000 cycles to prove out resistant to scuffing and scratching.
- 4. Face Veneer Impact Resistance - ASTM D-4226: 86 in/lb. to confirm impact resistance of face finish.

C. Door stiles to meet or exceed the following performance testing to ensure hardware fastener holding strength:

1. WDMA TM-8 "Hinge Loading Resistance" Extra Heavy Duty
2. WDMA TM-10 "Screw Holding Capacity" Extra Heavy Duty

D. Door Edges:

1. Finish
  - a. Edges of door to be PVC-Free high impact resistant engineered Acrovyn 4000 finish containing no persistent bio-accumulative toxicants (PBTs). See plan for color.
2. Edges are to fully wrap the door vertical stiles to eliminate banded edges thus improving durability and impact resistance.
3. Replaceable edges to be 3/4" thick for proper edge and face protection.
4. Door edges shall be exclusive of fasteners to improve appearance.
5. Edges must be flush with face of door thus eliminating raised edges that could be torn off.
6. Edges to include 1/4" radius edges to improve impact deflection. Square or banded edges should not be permitted.
7. Edges are to be extruded (not formed) to ensure correct appearance and proper door fit.
8. Edges to be provided as part of the construction of the door from single source manufacturer.

E. Adhesives

1. Crossbanding to core adhesives shall be Type II, urea formaldehyde free I to improve structural integrity of door.
2. Door faces are to be applied to the crossbanded core using Type I, urea formaldehyde free adhesives to eliminate delamination.

**2.3 FABRICATION, GENERAL**

- A. Doors shall be prefit and beveled at the factory to fit the openings to reduce handling and onsite labor costs. Prefit tolerances shall be in accordance with the requirements of WDMA I.S.1A-04, latest edition.
- B. For fire rated doors comply with clearance requirements of referenced quality standard for fitting in accordance with requirements listed in NFPA 80.
- C. Coordinate measurements of hardware mortises in metal frames. Contractor or door distributor to verify dimensions and alignment before factory machining.
- D. Factory machine doors for hardware that is not surface applied. Comply with final hardware schedules, door frame shop drawings, and hardware templates.
- E. Light openings must be cut by the manufacturer or by a certified machining distributor.
- F. To ensure proper fit of the doors bevel on both strike and hinge edges to be 1/8" in 2".

- G. Top and bottom rails shall be factory sealed with an approved wood sealer to eliminate moisture from entering into core thus eliminating warpage.
- H. Blocking: provide blocking approved for use in doors of fire ratings indicated as needed to eliminate through-bolting for surface applied hardware.

#### **2.4 ACCESSORIES**

##### **A. Glazing Stops**

- 1. Non Rated
  - a. Veneer wrapped metal finished frames stained or painted to match the door faces AMS 110
- 2. Fire Rated
  - a. Veneer wrapped metal finished frames stained or painted to match the door faces (20, 45 and 60-minute only)
- 3. Glass: Refer to Section 08810 (08 06 80) for glass types. When glass and glazing is required, it shall be supplied by the door manufacturer at factory. Submit glass size, type, pattern and thickness for factory glazed doors.

### **PART 3 - INSTALLATION**

#### **3.1 EXAMINATION**

- A. Inspect all doors prior to hanging. Repair noticeable marks or defects that may have occurred from improper storage or handling. Field repairs and touchups are the responsibility of the installing contractor upon completion of the initial installation. Field touchup shall include repair of job inflicted mars and final cleaning of finished doors.
- B. Examine door frames and verify that they comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
- C. Adjust frames to plumb condition before door installation. Tolerances for warp, squareness and pre-fitting dimensions shall be as per latest edition of WDMA I.S.1A-04.
- D. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

- A. Handle doors in accordance with recommendations of WDMA I.S.1A-04 "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.
- C. Install doors 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 and ITS/WH requirements.

- D. Factory fitted doors: Align in frames for uniform clearance at each edge.
- E. Set doors plumb, level, square and true.
- F. In the field trimming:
  - 1. Trim door height by cutting door bottom edges to a maximum of 3/4" per NFPA 80.
  - 2. Trimming of fire rated doors in width can only be done by the manufacturer or a certified machining distributor under special guidance of the manufacturer.
- G. Drill pilot holes for screws and bolts using templates provided by hardware manufacturer.
- H. Exercise caution when drilling pilot holes and installing hinges so that pilot holes are not over drilled and screws are not over torqued. Follow manufacturer's installation instructions.
- I. Reseal exposed tops and bottom rails of any doors that required site alteration with an approved wood sealer.
- J. Hardware installation: See Division 8 Section "Door Hardware".
- K. Clean prefinished doors with a rag in concert with water or household cleaners such as Fantastik®, Formula 409®, or equivalent. Following use of the cleaner, the cleaned surface should be "rinse wiped" with clean water and wiped dry to remove any remaining residue.

### **3.3 ADJUSTING**

- A. Operating: Re-hang or replace doors that do not swing or operate freely.
- B. Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08210 (08 14 23)