



## SECTION 08221

### FIBERGLASS REINFORCED DOOR AND FRAME SYSTEM

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#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Fiberglass Reinforced Plastic (FRP) Doors.
- B. Fiberglass Door Frames.
- C. Fiberglass Louvers.
- D. Fiberglass Reinforced Plastic (FRP) Transoms.

##### 1.2 RELATED SECTIONS

- A. Section 07900 - Joint Sealers: Perimeter sealant and backup materials.
- B. Section 08710 - Door Hardware.
- C. Section 08800 - Glazing.

##### 1.3 REFERENCES

- A. ASTM D 523 - Standard Test Method for Specular Gloss.
- B. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. ASTM E 152 - Standard Methods of Fire Tests of Door Assemblies.
- E. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
- F. SDI 100 - Recommended Specifications for Steel Doors and Frames.
- G. UL 10B - Standard for Fire Tests of Door Assemblies.
- H. UL 305 - Standard for Panic Hardware.

##### 1.4 PERFORMANCE REQUIREMENTS

- A. Door opening assemblies:
  - 1. Maximum flame spread 25 in accordance with ASTM E 84, self-extinguishing in accordance with ASTM D 635.

- 2. USDA accepted.
- B. Fire rated assemblies: Comply with requirements of UL10B, NFPA 252, and ASTM E 152; UL \_\_\_\_\_ rating, with doors and frames bearing rating labels.
- C. Fire rated assemblies: Comply with requirements of UL10B, NFPA 252, and ASTM E 152; UL ratings indicated on drawings, with doors and frames bearing rating labels.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. [ Product Data ]: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings:
  - 1. Plans: Indicate location of each door opening assembly in project.
  - 2. Elevations: Dimensioned elevation of each type door opening assembly in project; indicate sizes and locations of door hardware, and lites and louvers, if specified.
  - 3. Details: Installation details of each type installation condition in project; indicate installation details of glazing, if specified.
  - 4. Schedule: Indicate each door opening assembly in project; cross-reference to plans, elevations, and details.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- F. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- G. Closeout: Submit warranty documents specified herein.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing fiberglass doors and frames with a minimum documented experience of ten years.
- B. Installer Qualifications: Company specializing in installation of fiberglass doors and frames with minimum three years documented experience.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's unopened, undamaged packaging, with manufacturer's labels intact.
- B. Inspect and report damage to doors at time of delivery.
- C. Store products in manufacturer's unopened packaging until ready for installation.
- D. Store door assemblies in on end, to prevent damage to face corners and edges.

## 1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's 15-year warranty against failure due to corrosion from specified environment.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: FIB-R-Dor, Div. of Advance Fiberglass, Inc., which is located at: 7516 Counts Massie Rd. ; N. Little Rock, AR 72113; Toll Free Tel: 800-FIB-RDOR; Tel: 501-758-9494; Fax: 501-758-9496; Email: [request info](mailto:requestinfo@fibrdor.com); Web: [www.fibrdor.com](http://www.fibrdor.com)
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- D. Provide all fiberglass doors and frames from a single manufacturer.

### 2.2 MATERIALS

- A. Fiberglass Mat: Glass fiber chopped strand, minimum 1.5 ounces per square foot.
- B. Resins: Manufacturer's formulation for fabricating units to meet specified requirements.
- C. Anchors: Manufacturer's standard stainless steel expansion anchors for existing openings, and stainless steel masonry tee anchors for new construction.
- D. Fasteners: Stainless steel.
- E. Glazing: Type specified in Section 08800; factory installed.

### 2.3 COMPONENTS

- A. Non-rated Fiberglass Reinforced Plastic (FRP) Doors:
  - 1. Thickness: 1-3/4 inches (45 mm).
  - 2. Thermal Insulating Value: 'R' factor 11.
  - 3. Construction:
    - a. Core: End-grain balsa wood, resin-impregnated.
    - b. Door Plates: Molded in one continuous piece, resin reinforced with hand-laid glass fiber mat, nominal 1/8 inch (3 mm) thick, minimum 15 mil gel-coated surface.
    - c. Door Edges: Minimum 3 layers resin-reinforced glass fiber mat, nominal 3/8 inch (9.5 mm) thick, machine tooled.
  - 4. Sizes: Indicated on drawings.
  - 5. Finish: Smooth gloss surface, minimum value of 88 in accordance with ASTM D 523.
    - a. Color: White finish.
    - b. Color: Gray finish.
    - c. Color: Tan finish.
    - d. Color: Dark Brown finish.
    - e. Color: \_\_\_\_\_.
- B. Fire-rated Fiberglass Reinforced Plastic (FRP) Doors:
  - 1. Thickness: 1-3/4 inches (45 mm).

2. Thermal Insulating Value: 'R' factor 11.
  3. Construction:
    - a. Core: Fire-resistant mineral core.
    - b. Door Plates: Molded in one continuous piece, resin reinforced with hand-laid glass fiber mat, nominal 1/8 inch (3 mm) thick, minimum 25 mil gel-coated surface.
    - c. Door Edges: Minimum two layers resin-reinforced glass fiber mat, nominal 1/4 inch (6 mm) thick, machine tooled.
  4. Sizes: Indicated on drawings.
  5. Finish: Smooth gloss surface, minimum value 88 in accordance with ASTM D 523.
    - a. Color: White finish.
    - b. Color: Gray finish.
    - c. Color: Tan finish.
    - d. Color: Dark Brown finish.
    - e. Color: \_\_\_\_\_.
- C. Non-rated Fiberglass Frames:
1. Construction: One-piece pultruded fiberglass reinforced plastic, minimum 1/4 inch wall thickness, jamb-to-head joints mitered and reinforced with FRP clips and stainless steel fasteners; conforming to SDI requirements for performance equivalent to 16 gage steel frames.
  2. Frame profile: 5-3/4 inches (146 mm) deep, 2 inches (51 mm) wide face; double rabbeted with 5/8 inch (16 mm) high stop.
  3. Sizes: Indicated on drawings.
  4. Finish: Satin Co-Extruded finish, with true and consistent color throughout frame thickness.
    - a. Color: White CO-X Finish.
    - b. Color: Gray CO-X Finish.
    - c. Color: Tan CO-X Finish.
    - d. Color: Dark Brown CO-X Finish.
    - e. Color: \_\_\_\_\_.
- D. Fire-rated Frames: UL approved, and as follows:
1. Construction: Type 304 stainless steel.
  2. Construction: Galvaneal steel, primer finish.
  3. Sizes: For door sizes and frame profiles indicated on drawings.
- E. Frame Anchors: Types recommended by manufacturer for project conditions.
- F. Louvers in Non-rated Doors:
1. Construction: Molded solid vanes; pultruded fiberglass reinforced plastic construction.
  2. Sizes: Indicated on drawings.
  3. Finish: Satin pigmented finish, with true and consistent color throughout frame thickness.
    - a. Color: White finish.
    - b. Color: Gray finish.
    - c. Color: Tan finish.
    - d. Custom Gelcoated Color: Color as selected by the Architect.
- G. Louvers in Fire-rated Doors: UL approved for indicated fire resistance rating.
- H. Lites in Non-rated Doors:
1. Stops: Pultruded fiberglass reinforced plastic construction.
  2. Glazing: Specified in Section 08800.
  3. Sizes: Indicated on drawings.

4. Fasteners: Stainless steel screws.
- I. Lites in Fire-rated Doors: UL approved, and as follows:
    1. Frames: Type 304 stainless steel.
    2. Frames: Cold-rolled steel, gelcoated to match door color.
    3. Frames: Cold-rolled steel, bronze powder coat finish.
    4. Glazing: Specified in Section 08800.
    5. Sizes: Indicated on drawings.
    6. Fasteners: Stainless steel screws.
  - J. Fiberglass Reinforced Plastic (FRP) Transoms: Match adjacent door construction and color.
  - K. Door Hardware: Specified Section 08710.
  - L. Door Hardware: Supplied by door manufacturer, UL-listed for fire-rated openings, and as follows:
    1. Hinges: Location and quantity indicated on approved shop drawings, and as follows:
      - a. Type: Full-mortise, ball-bearing stainless steel butts, 4-1/2 inches by 4-1/2 inches (114 mm by 114 mm) template; stainless steel fasteners.
      - b. Acceptable product: Fib-R-Dor BB51.
    2. Closers:
      - a. Type: Standard service.
      - b. Acceptable product: International 984.
    3. Closers:
      - a. Type: Severe service.
      - b. Acceptable product: LCN 4041-EDA-SRI-ALXTB.
    4. Closers:
      - a. Type: Stainless steel arms.
      - b. Acceptable product: Norton 1601SS.
    5. Kick Plates: 18 gage stainless steel, with beveled edges and brushed finish; stainless steel fasteners.
    6. Locksets and Latchsets: Ball knob, exposed surfaces of stainless steel, Grade 2.
    7. Locksets and Latchsets: Ball knob, exposed surfaces of stainless steel, Grade 1.
    8. Push/Pulls: Stainless steel, with beveled edges and brushed finish, size 3-1/2 inches (89 mm) by 15 inches (381 mm); stainless steel fasteners.
    9. Exit Devices:
      - a. Type: Conforming to UL 305; equipped with pull handle and thumb latch.
      - b. Acceptable product: RIM 19-R Series.

## 2.4 FABRICATION

- A. Fiberglass Reinforced Plastic (FRP) Doors:
  1. Minimum glass fiber to resin ratio: 30 percent.
  2. Mortise for lockset, and recess for strike plate in lock stile.
  3. Embed steel reinforcement for hinges in fiberglass matrix; provide for hinge leaf recesses in hinge stile.
- B. Fiberglass Frames:
  1. Mortise for lock strike, and recess for strike plate in lock jamb.
  2. Reinforce for hinges and other indicated hardware.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify openings are ready to receive work and opening dimensions and clearances are as indicated on approved shop drawings. Do not begin installation until openings have been properly prepared.
- B. If opening preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Acclimate doors and frames to site conditions for a minimum of 24 hours before installation.
- B. Do not remove labels from fire-rated doors and frames.

### 3.3 INSTALLATION

- A. Install door opening assemblies in accordance with approved shop drawings, SDI 100, and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.
- B. Use anchorage devices to securely fasten sliding door assembly to wall construction without distortion or imposed stresses.
- C. Coordinate installation of thermal insulation at shim spaces at frame perimeter.
- D. Installation of door hardware is specified in Section 08710.
- E. Install door hardware in accordance with manufacturer's printed instructions, using through-bolts to secure surface applied hardware.
- F. Site Tolerances: Maintain plumb and level tolerances specified in manufacturer's printed installation instructions.

### 3.4 ADJUSTING

- A. Adjust doors in accordance with door manufacturer's maintenance instructions to swing open and shut without binding, and to remain in place at any angle without being moved by gravitational influence.
- B. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instructions.

### 3.5 CLEANING

- A. Clean surfaces of door opening assemblies and sight-exposed door hardware in accordance with manufacturer's maintenance instructions.
- B. Remove labels and visible markings.

### 3.6 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

### 3.7 SCHEDULE

- A. Schedules: Refer to Door Schedule indicated on drawings.

END OF SECTION