

SECTION 08 17 43  
FLUSH FRP DOORS  
Construction Specification

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Fiberglass reinforced polyester (FRP) flush doors.
- B. Fre Rated Fiberglass reinforced polyester (FRP) flush doors.

1.2 RELATED SECTIONS

- A. Section 08 11 13- Hollow Metal Doors and Frames
- B. Section 08 71 00 - Door Hardware
- C. Section 28 13 00 Access Control & Alarm Monitoring System .
- D. Exterior Aluminum, HM Door Frames, Curtain Wall, Storefronts and Windows Design Standards

1.3 REFERENCE STANDARDS

- A. ANSI A250.4 - American National Standard Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings
- B. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
- D. NFPA 80 - Standard for Fire Doors and Other Opening Protectives
- E. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
- B. Air Infiltration: For a single door 3'-0" x 7'-0", test specimen shall be tested in accordance with ASTM E 283 at pressure differential of 6.24 psf. Door shall not exceed 0.90 cfm per linear foot of perimeter crack.
- C. Water Resistance: For a single door 3'-0" x 7'-0", test specimen shall be tested in accordance with ASTM E 331 at pressure differential of 7.50 psf. Door shall not have water leakage.
- D. Indoor air quality testing per California Department of Public Health (CDPH) Standard Method test data and range.
- E. Hurricane Test Standards, Single Door with Single-Point Latching:
  - 1. Uniform Static Load, ASTM E 330 Plus or minus 75 pounds per square foot.

2. Forced Entry Test, 300 Pound Load Applied, SFBC 360iii.2 (b)(5) or widely recognized and utilized standard door and fenestration industry testing procedure.
  3. Cyclic Load Test, SFBC PA 203 Plus or minus 53 pounds per square foot.
  4. Large Missile Impact Test, SFBC PA 201 Passed.
- F. Swinging Door Cycle Test, Doors and Frames, ANSI A250.4 Minimum of 25,000,000 cycles.
- G. Cycle Slam Test Method, NWWDA T.M. 7-90 Minimum 5,000,000 Cycles.
- H. Swinging Security Door Assembly, Doors and Frames, ASTM F 476 Grade 40.
- I. Salt Spray, Exterior Doors and Frames, ASTM B 117 Minimum of 500 hours.
- J. Sound Transmission, Exterior Doors, STC, ASTM E 90 Minimum of 2v.
- K. Thermal Transmission, Exterior Doors, U-Value, AAMA 1503-98 Maximum of 0.29 BTU/hr x sf x degrees F. Minimum of 55 CRF value.
- L. Surface Burning Characteristics, FRP Doors and Panels, ASTM E 84
1. Flame Spread: Maximum of 200, Class C.
  2. Smoke Developed: Maximum of 450, Class C.
- M. Surface Burning Characteristics, Class A Option On Interior Faces of FRP Exterior Panels and Both Faces of FRP Interior Panels, ASTM E 84
1. Flame Spread: Maximum of 2v.
  2. Smoke Developed: Maximum of 450.
- N. Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 256 1iv.0 foot-pounds per inch of notch.
- O. Tensile Strength, FRP Doors and Panels, Nominal Value, ASTM D 638 13,000 psi.
- P. Flexural Strength, FRP Doors and Panels, Nominal Value, ASTM D 790 21,000 psi.
- Q. Water Absorption, FRP Doors and Panels, Nominal Value, ASTM D 570 0.20 percent after 24 hours.
- R. Indentation Hardness, FRP Doors and Panels, Nominal Value, ASTM D 2583 5v.
- S. Gardner Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 5420 120 in-lb.
- T. Sustainability Requirements:

San Mateo County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

## 1.5 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes, and installation.
- C. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections, and details, indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.
- D. Samples:
  - 1. Door: Submit manufacturer's sample of door showing face sheets, core, framing, and finish.
  - 2. Color: Submit manufacturer's samples of standard colors of doors and frames.
- E. Test Reports: Submit certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.
- F. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.
- G. Maintenance Manual: Submit manufacturer's maintenance and cleaning instructions for doors, including maintenance and operating instructions for hardware.
- H. Provide LEED MR and IEQ documentation for Certification.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  - 1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years successful experience.
  - 2. Door and frame components from same manufacturer.
  - 3. Evidence of a compliant documented quality management system.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying opening door mark and manufacturer.
- B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
- C. Handling: Protect materials and finish from damage during handling and installation.

#### 1.8 WARRANTY

- A. Warrant doors, frames, and factory hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
- B. Warranty Period: Ten (10) years starting on date of shipment. In addition, provide a lifetime warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.

### PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide named products by Special-Lite, Inc. Decatur, Michigan 4904v. (800) 821-6531 or comparable by an available manufacturer.

## 2.2 FRP FLUSH DOORS

- A. Basis of Design Product: Model SL-17 Flush Doors.
- B. Sustainability requirements: Greenguard certification
- C. Construction:
  - 1. Door Thickness: 1-3/4 inches.
  - 2. Stiles and Rails: Aluminum Alloy 6063-T5, minimum of 2-5/16-inch depth.
  - 3. Corners: Mitered.
  - 4. Provide joinery of 3/8-inch diameter full-width tie rods through extruded splines top and bottom as standard tubular shaped stiles and rails reinforced to accept hardware as specified.
  - 5. Securing Internal Door Extrusions: 3/16-inch angle blocks and locking hex nuts for joinery. Welds, glue, or other methods are not acceptable.
  - 6. Furnish extruded stiles and rails with integral reglets to accept face sheets. Lock face sheets into place to permit flush appearance.
  - 7. Rail caps or other face sheet capture methods are not acceptable.
  - 8. Extrude top and bottom rail legs for interlocking continuous weather bar.
  - 9. Meeting Stiles: Pile brush weatherseals. Extrude meeting stile to include integral pocket to accept pile brush weather seals.
  - 10. Bottom of Door: Install bottom weather bar with nylon brush weather stripping into extruded interlocking edge of bottom rail.
  - 11. Glue: Use of glue to bond sheet to core or extrusions is not acceptable.
- D. Face Sheet:
  - 1. Material: SpecLite3 FRP, 0.120-inch thickness, finish color throughout. Abuse-resistant engineered surface.
  - 2. Protective coating: Abuse-resistant engineered surface with UV inhibitors.
  - 3. Texture: Pebble.
  - 4. Color: As selected by Architect from manufacturer's standard range, in accordance with San Mateo County Community College District's Design Standards..
  - 5. Adhesion: The use of glue to bond face sheet to foam core is prohibited.
- E. Core:
  - 1. Material: Poured-in-place polyurethane foam.

2. Density: Minimum of 5 pounds per cubic foot.
  3. R-Value: Minimum of 9.
- F. Cutouts:
1. Manufacture doors with cutouts for required vision lites, louvers, and panels.
  2. Factory install door manufacturer's vision lites, louvers, and panels.
- G. Hardware:
1. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
  2. Factory install hinges, locksets and panics.

### 2.3 FRP CLAS FIRE RATED DOORS

- A. Performance Requirements:
1. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
  2. 90-Minute Full-Scale Vertical Fire Test of Doors, Positive Pressure: Complied with acceptance criteria for 90-minute rating.
    - a. UBC Standard 7-ii.
    - b. NFPA 25ii.
    - c. UL 10C.
- B. Sustainability requirements: no Greenguard certification required at this time
- C. Basis of Design Product: Model SL-21 (Confirmed, see attachment 08.03) fire-rated doors.
- D. Construction:
1. Door Thickness: 1-7/8 inches at door edge.
  2. Stiles and Rails: Stainless steel channel secured with stainless steel screws every 10 inches.
  3. Corners: Welded.
- E. Face Sheets:
1. Material: SpecLite3 FRP, 0.120-inch thickness, finish color throughout. Abuse-resistant engineered surface.
  2. Thickness: 0.120 inch.
  3. Surface: Abuse-resistant engineered surface.
  4. Color: As selected by Architect from manufacturer's standard range, in accordance with San Mateo County Community College District's Design Standards.

5. Sheet Type: Class C FRP.
- F. Core:
1. Material: Mineral.
  2. Density: Minimum 30 pounds per cubic foot.
  3. Perimeter blocking: Minimum 1-1/2 inches wide.
- G. Cutouts:
1. Manufacture doors with cutouts for required vision lites.
  2. Factory install vision lites.
- H. Door Perimeter Channel: Type 304 stainless steel, 3/4 inch by 1-7/8 inches by 0.062 inch.
- I. Fasteners:
1. Material: Aluminum, 18-8 stainless steel, or other noncorrosive metal.
  2. Compatibility: Compatible with items to be fastened.
  3. Exposed Fasteners: Screws with finish matching items to be fastened.
  4. Throughbolt surface mounted hardware.
- J. Fire-Rated Hollow Metal Frames: As specified in Section 08 11 13 Hollow Metal Doors and Frames.
- K. Gaskets and Seals:
1. Gaskets: Pemko S88.
  2. Smoke Seals: Pemko HSS2000, 1/2-inch wide.
  3. Smoke Seals, Pair Doors, Meeting Stile: Pemko S77.

## 2.4 MATERIALS

- A. Aluminum Framing Members:
1. Extrusions: ASTM B 22i.
  2. Sheet and Plate: ASTM B 209.
  3. Alloy and Temper: As required by manufacturer for strength, corrosion resistance, application of required finish, and control of color.
  4. Finish: As selected by Architect from manufacturer's standard finishes.
- B. Fasteners:
1. Material: Aluminum, 18-8 stainless steel, or other noncorrosive metal.
  2. Compatibility: Compatible with items to be fastened.
  3. Exposed Fasteners: Screws with finish matching items to be fastened.

## 2.5 FABRICATION

- A. Sizes and Profiles: Required sizes for door and frame units, and profile requirements shall be as indicated on the Drawings.
- B. Coordination of Fabrication: Field measure before fabrication and show recorded measurements on shop drawings.
- C. Assembly:
  - 1. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
  - 2. Remove burrs from cut edges.
- D. Welding: Welding of doors or frames is not acceptable.
- E. Fit:
  - 1. Maintain continuity of line and accurate relation of planes and angles.
  - 2. Secure attachments and support at mechanical joints with hairline fit at contacting members.

## 2.6 ARCHITECTURAL PANELS

- A. FRP Panels:
  - 1. Basis of Design Product: Model SL-37 Architectural Panels.
  - 2. Thickness: 1 inch.
- B. Face Sheets:
  - 1. Material: SpecLite3 FRP, 0.120-inch thickness, finish color throughout. Abuse-resistant engineered surface.
  - 2. Texture: Pebble.
  - 3. Color: Match door color.
- C. Insulated Speclite3 FRP Panels:
  - 1. Insulated Panels: Two 0.120-inch minimum thickness sheets.
  - 2. Core: Foam polyurethane core of a minimum of 5 pounds per cubic foot density.
  - 3. Form components to function as single unit.
  - 4. R-Value: Minimum of 4 for 1-inch panels.
- D. Class A Flame Spread and Smoke Developed Rating:
  - 1. Class A flame spread and smoke developed rating on interior faces of exterior panels and both faces of interior panels.
  - 2. Flame Spread, ASTM E 84: Maximum of 2v.
  - 3. Smoke Developed, ASTM E 84: Maximum of 450.

## 2.7 HARDWARE

- A. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
- B. Factory install hinges, locksets and panics.
- C. Fire Rated Doors: Surface hardware must be through bolted.
- D. Provide DSA approved flush pulls on non-rated doors with panic hardware. Model SL-86.

## 2.8 VISION LITES

- A. Factory Glazing: 1 inch glass.
- B. Lites in Exterior Doors: Allow for thermal expansion.
- C. Provide door manufacturer's standard lite kits, factory installed.

## 2.9 LOUVERS

- A. Type: Door Manufacturer's aluminum, inverted Y-type, fixed blade, 12 inches minimum from bottom of door.
- B. Installation: Factory installed into standard vision lite kit. Exterior side of louver shall be free of fasteners.
- C. Insect screen.
- D. Finish: As selected by Architect from manufacturer's standard finishes.

## 2.10 FINISHES

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
- B. Aluminum Finishes:
  - 1. Anodized Finish: Class I finish, 0.7 mils thick.

Specifier Notes: Specify one of the following anodized finishes and delete the others.

- a. Clear 215 R1, AA-M10C12C22A41, Class I, 0.7 mils thick.
- b. Champagne, AA-M10C12C22A44, Class I, 0.7 mils thick.
- c. Light Bronze, AA-M10C12C22A44, Class I, 0.7 mils thick.
- d. Medium Bronze, AA-M10C12C22A44, Class I, 0.7 mils thick.
- e. Dark Bronze, AA-M10C12C22A44, Class I, 0.7 mils thick.
- f. Black, AA-M10C12C22A44, Class I, 0.7 mils thick.

Specifier Notes: Consult Special-Lite for painted finishes for aluminum.

- C. High-Performance Organic Finish:
  - 1. Two-coat fluoropolymer finish complying with AAMA 2604 and containing not less than 50 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Color and Gloss: As indicated by manufacturer's designations.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

### 3.2 PREPARATION

- A. Ensure openings to receive frames are plumb, level, square, and in tolerance.

### 3.3 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
- B. Install doors plumb, level, square, true to line, and without warp or rack.
- C. Anchor frames securely in place.
- D. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
- E. Set thresholds in bed of mastic and backseal.
- F. Install exterior doors to be weathertight in closed position.
- G. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- H. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

### 3.4 FIELD QUALITY CONTROL

Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for installation of doors.

### 3.5 ADJUSTING

Adjust doors, hinges, and locksets for smooth operation without binding.

### 3.6 CLEANING

- A. Clean doors promptly after installation in accordance with manufacturer's instructions.

B. Do not use harsh cleaning materials or methods that would damage finish.

3.7 PROTECTION

Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION