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**Product Guide Specification**

*Specifier Notes*: This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including *MasterFormat*, *SectionFormat,* and *PageFormat,* contained in the CSI *Manual of Practice.*

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings.

Delete all *Specifier Notes* when editing this section.

# SECTION 08255

# FRP FLUSH DOORS

*Specifier Notes*: This section covers CMI Architectural Products, Inc. fiberglass reinforced polyester (FRP) flush doors with aluminum frames. Consult CMI for assistance in editing this section for the specific application.

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

A. Fiberglass reinforced polyester (FRP) flush doors with aluminum frames.

### 1.2 RELATED SECTIONS

*Specifier Notes*: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

A. Section 08100 - Metal Doors and Frames.

B. Section 08300 - Specialty Doors.

C. Section 08400 - Entrances and Storefronts.

D. Section 08710 - Door Hardware.

## 1.3 REFERENCES

*Specifier Notes*: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards, but is merely a listing of those used.

A. AAMA 1503.1 - Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.

B. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.

C. ASTM B 221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

D. ASTM D 256 - Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.

E. ASTM D 570 - Water Absorption of Plastics.

F. ASTM D 638 – Tensile Strength of plastics.

G. ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

H. ASTM D1308 – Stain resistance of a product's natural surface

I. ASTM D 2583 - Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

J. ASTM E 84 - Surface Burning Characteristics of Building Materials.

K. ASTM E 283-91 – Air Infiltration

L. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

M. ASTM E 331 – Water Resistance

N. SFBC P.A. 203 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.

O. SFBC 3603.2 (b) (5) - Forced Entry Resistance Test.

## 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 3'-0" x 7'-0" single or pair of doors, the test specimen shall be tested in accordance with ASTM 283-91 @ pressure differential of 1.56 PSF. Single door shall not exceed .50 CFM per linear foot of perimeter crack or 1.00 CFM for a pair of doors.

C. Thermal Transmission, Exterior Doors, U-Value, AAMA 1503.01: Maximum of 0.09 BTU/hr x sf x degrees F.

D. Surface Burning Characteristics, FRP Doors and Panels, ASTM E 84:
   1. Flame Spread: Maximum of 170, Class C.
   2. Smoke Developed: Maximum of 390, Class C.

E. Impact Strength, FRP Doors and Panels, Nominal Value, ASTM D 256: 15.0 foot-pounds per inch of notch.

F. Tensile Strength, FRP Doors and Panels, Nominal Value, ASTM D 638: 14,300 psi.

G. Flexural Strength, FRP Doors and Panels, Nominal Value, ASTM D 790: 24,000 psi.

H. Water Absorption, FRP Doors and Panels, Nominal Value, ASTM D 570: 0.20 percent after 24 hours.

I. Indentation Hardness, FRP Doors and Panels, Nominal Value, ASTM D 2583: 55.

J. Abrasion Resistance, Face Sheet, Taber Abrasion Test, 25 Cycles at 1,000 Gram Weight With CS-17 Wheel: Maximum of 0.008 average weight loss percentage.

K. Stain Resistance, ASTM D1308: Face sheet unaffected after exposure to red cabbage, tea, and tomato acid. Superficial change (Stain removed Easily with mild abrasive or FRP cleaner) when exposed to Sharpie, ink pen and white spray paint.

L. Chemical Resistance: ASTM D543. Excellent rating
   1. Acetic acid, 5%.
   2. Nitric acid, 10% solution.
   3. Sodium hypochlorite, 4 to 6% solution.
   4. Citric acid, 10% solution.
   5. Sodium Chloride, 10% solution

## 1.5 SUBMITTALS

A. Comply with Section 01330 - 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, finish, options, and accessories.

D. Samples:
   1. Door: Submit manufacturer's sample of door showing face sheets, core, framing, finish, options, and accessories.
   2. Color: Submit manufacturer's samples of standard colors of doors and frames.

E. Test Reports: Submit verified test reports from an independent agency indicating that 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. Warranty: Submit manufacturer's standard warranty.

## 1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Engaged in the manufacturing of commercial aluminum entrance doors for a minimum of 30 years.
   2. Door and frame components from same manufacturer.

## 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

*Specifier Notes*: Consult CMI for additional warranty information.

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: One year (or as specified) starting from the date of substantial completion.

# PART 2 PRODUCTS

## 2.1 MANUFACTURER

A. CMI Architectural Products, Inc. DeSmet, SD

## 2.2 FRP FLUSH DOORS

A. Model: Series 8000 Flush Doors with .120 thick fiberglass reinforced polyester (FRP) face sheets.

*Specifier Notes*: Specify the door opening size of the Series 8000 flush doors.

B. Door Opening Size: As indicated on the drawings.

C. Construction:
   1. Door Thickness: 1-3/4 inches.
   2. Stiles and Rails: Aluminum Alloy 6063-T5, minimum of 4 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" angle blocks and hex-type nuts for joinery. Welds, glue, or other methods are not acceptable.
6. Furnish extruded stiles and rails with integral reglets to accept fully framed face sheet and lock it into place.
7. Meeting Stiles: Wool pile weatherstripping. Extrude meeting stile to include integral pocket to accept nylon brush.

D. Face Sheet:
1. Material: .120-inch thick fiberglass reinforced panel, matte finish with integral color. Abuse-resistant surface.
2. Texture: Pebble.

*Specifier Notes*: Specify one of the following standard colors and delete the others. Consult CMI for availability of custom colors.

3. Color: White, Light Gray, Beige or Dark Bronze.

E. Core (standard):

1. Material: Rigid polystyrene board insulation.
2. Density: Minimum of 2 pounds per cubic foot.
3. R-value: Minimum 6.75.

Core (optional)

1. Material: Rigid isocyanurate board insulation.
2. Density: Minimum of 2.6 pounds per cubic foot.
3. R-value: Minimum of 8.

F. Cutouts:
1. Manufacture doors with cutouts for required vision lites, louvers, and panels.
2. Factory install vision lites, louvers, and panels.

G. Hardware:
1. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
2. Factory install hardware.

## 2.3 MATERIALS

A. Aluminum Members:
1. Extrusions: ASTM B 221.
2. Sheet and Plate: ASTM B 209.
3. Alloy and Temper: 6063-T5

B. Components: Door and frame components from same manufacturer.

C. Fasteners:
1. Material: Aluminum, nonmagnetic 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.

## 2.4 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 openings before fabrication and show revised 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.

*Specifier Notes*: Delete the following article if architectural panels are not required. The architectural panels are manufactured with the same FRP face materials as the Series 8000 flush doors.

## 2.5 ARCHITECTURAL PANELS

A. FRP Panels:
1. Model: Series 8000 Architectural Panels with FRP face sheets.

*Specifier Notes*: Specify the size and thickness of the FRP architectural panels.

2. Size: As indicated on the drawings.
3. Thickness: 1/4 inch or 1 inch (as indicated on the drawings).

B. Face Sheets:
1. Material: .120-inch thick fiberglass reinforced panel, matte finish with integral color. Abuse-resistant surface.
2. Texture: Pebble.

*Specifier Notes*: Specify one of the following standard colors and delete the others. Consult CMI for availability of custom colors.

3. Color: White, Light Gray, Beige or Dark Bronze.

*Specifier Notes*: Delete the optional insulated FRP panels if not required.

C. Insulated FRP Panels:
1. Insulated Panels: Two 0.120-inch minimum thickness sheets.
2. Core: Rigid polystyrene board insulation with a minimum of 2 pounds per cubic foot density.

3. Adhesive: Moisture cured urethane.
4. U-Value: Minimum of 0.148 for 1-inch panels.

*Specifier Notes*: Delete the optional Class A flame spread and smoke developed rating if not required.

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 145.
3. Smoke Developed, ASTM E 84: Maximum of 345.

## 2.6 ALUMINUM DOOR FRAMING SYSTEMS

A. Tubular Framing:
1. Size and Type: As indicated on the drawings.
2. Materials: Aluminum Alloy 6063-T5, 1/8-inch minimum wall thickness.
3. Removable Door Stops: 3/4 inch high with wool pile weatherstripping.
4. Frame Members: Closed back, solid tube framing.
5. Caulking: Caulk joints before assembling frame members.
6. Joints:
   a. Secure joints with fasteners.
   b. Provide hairline butt joint appearance.
7. Field Fabrication: Field fabrication of framing using stick material is not acceptable.
8. Glazing Pockets: Integral with door framing. Applied sash is allowed only at transom jambs or where tube framing is specified.
9. Hardware:
   a. Premachine and reinforce frame members for hardware in accordance with manufacturer's standards and hardware schedule.
   b. Factory install hardware.
10. Anchors:
   a. Anchors appropriate for wall conditions to anchor framing to wall materials.
   b. Secure head and sill members of transom, side lites, and similar conditions.

## 2.7 HARDWARE

*Specifier Notes*: CMI offers a wide range of hardware products and services, including furnishing and factory installing hardware. Hardware may be supplied by either CMI or the Contractor.

A. Prepare doors in accordance with templates from specified hardware manufacturers and hardware schedule.

B. Factory install hardware to the greatest extent possible.

*Specifier Notes*: Delete the following article if vision lites are not required.

## 2.8 VISION LITES

*Specifier Notes*: Specify 1/4 inch glass or 1 inch glass insulating units.

A. Factory Glazing: 1/4 inch glass or 1 inch glass insulating units (as indicated on the drawings).

B. Lites in Exterior Doors: Allow for thermal expansion.

*Specifier Notes*: Specify rectangular or curved, standard or custom lites. Specify size of lites. Consult CMI for custom lite requirements.

C. Rectangular Lites:
   1. Size: As indicated on the drawings.
   2. Factory glazed with interior screw-applied aluminum stops anodized to match perimeter door rails.

*Specifier Notes*: Delete the following article if louvers are not required

## 2.9 LOUVERS

A. Type: Aluminum, inverted Y-type, fixed blade, 12 inches minimum from bottom of door.

*Specifier Notes*: Specify the size of the louvers.

B. Size: As indicated on the drawings.

C. Installation: Factory installed into standard vision lite kit. Exterior side of louver to be free of fasteners.

*Specifier Notes*: Delete the optional insect screen if not required.

D. Insect screen.

## 2.10 ALUMINUM FINISHES

A. Anodized:

*Specifier Notes*: Specify one of the following standard anodized finishes. Consult CMI for availability of custom anodized finishes.

1. #20 Clear 204-R1, AA-M21C22A31, Class II, 0.4 mils thick.
2. #21 Clear 215 R1, AA-M21C22A41, Class I, 0.7 mils thick.
3. #30 Champagne, AA-M12C22A44, Class I, 0.7 mils thick.
4. #31 Light Bronze, AA-M12C22A44, Class I, 0.7 mils thick.
5. #32 Medium Bronze, AA-M12C22A44, Class I, 0.7 mils thick.
6. #33 Dark Bronze, AA-M12C22A44, Class I, 0.7 mils thick.
7. #35 Black, AA-M12C22A44, Class I, 0.7 mils thick.

*Specifier Notes*: Consult CMI for painted finishes for aluminum.

C. Painted: High performance flurocarbon coating in accordance with AAMA 2605. Color as selected by architect.

## PART 3 EXECUTION

### 3.1 EXAMINATION

A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent utilization of doors. 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 shop drawings and/or installation 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 weather tight 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.

*Specifier Notes*: Delete the following article if manufacturer's field services are not required for the specific application.

### 3.4 FIELD QUALITY CONTROL

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

### 3.5 ADJUSTING

A. 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

A. 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**