Special-Lite, Inc. July 2015

860 S. Williams St.

Decatur, Michigan 49045

Toll Free (800) 821-6531

Phone (269) 423-7068

Fax (800) 423-7610

Web Site www.special-lite.com

E-Mail info@special-lite.com

**Product Guide Specification**

| Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat, SectionFormat,* and *PageFormat,* as described in *The Project Resource Manual—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 numbers and titles are from *MasterFormat* 1995 Edition, with numbers and titles from *MasterFormat* 2004 Edition in parentheses. Delete version not required. |
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**SECTION 08255 (08 17 43)**

**FRP AF-100 PULTRUDED FLUSH DOORS**

| Specifier Notes: This section covers Special-Lite fiberglass reinforced polyester (FRP) flush doors with FRP frames. Consult Special-Lite for assistance in editing this section for the specific application. |
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**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

A. Fiberglass reinforced polyester (FRP) flush doors with FRP 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. |
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1. Section 08710 (08 71 00) - Door Hardware.
2. Section 08800 (08 81 00) – Glass and Glazing
3. Section 040000 Masonry
4. Section 055000 Metal Fabrications
   1. **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. |
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1. AAMA 920-11 – Specification for Operating Cycle Performance of Side-Hinged Exterior Door Systems.
2. AAMA 1304 - Voluntary Specification for Forced-Entry Resistance of Side-Hinged Door Systems.
3. ASTM C 1363-97 – Thermal Test Method for the Thermal Performance of Building Assemblies.
4. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics
5. ASTM D 1761-06 – Standard Test Methods for Mechanical Fasteners in Wood.
6. ASTM D 6670-01 - Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products.
7. ASTM E 84-11 – Standard Method of Test for Surface Burning Characteristics of Building Materials.
8. ASTM E 283-04 – Test Method for Determining Rate of Airflow Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.
9. ASTM E 330-02 – Test Method for Structural Performance of Exterior Windows, Curtain Walls, Doors by Uniform Static Air Pressure Difference.
10. ASTM E 331-00 – Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
11. ASTM E 1886-05 – Test Method for Performance of Exterior Windows, Curtain Wall, Doors and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differential.
12. ASTM E 1996-06 – Test Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes.

**1.4 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. Thermal Performance: Per ASTM C 1363-97, R-value 7.42.
3. Indoor air quality testing per ASTM D 6670-01: GREENGUARD Environmental Institute Certified including GREENGUARD for Children and Schools Certification.
4. 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 0.09 cfm/ft2.
5. Water Penetration: For a single door 3’-0” x 7’-0”, test specimen shall be tested in accordance with ASTM E 331. Door shall not have water leakage.
6. Uniform Load Structural: For a single door 3’-0” x 7’-0”, test specimen shall be tested in accordance with ASTM E 330: Plus or minus 270 psf.
7. Forced Entry Resistance, per AAMA 1304, Pass with No Entry.
8. Blast Test, Doors and Frames, ASTM F 1642-04, 6 psi / 41 psi-msec: No Hazard.
9. Large Missile Impact, Doors and Frames, ASTM E 1996, Pass.
10. Air Pressure Cycling, Doors and Frames, ASTM E 1886, Design Pressure Plus or Minus 100 psf, Pass with no rips, tears, or penetrations.
11. Cycle Test, AAMA 920-11, 2,000,000 Cycles.
12. Screw Pullout, ASTM D 1761-06, Minimum 924 pounds.

**1.5 SUBMITTALS**

A. Comply with Section 01330 (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, 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 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. Warranty: Submit manufacturer's standard warranty.

**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**

| Specifier Notes: Consult Special-Lite for additional warranty information. |
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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 years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure due to corrosion

**PART 2 PRODUCTS**

* 1. **MANUFACTURER**

1. Special-Lite, Inc., PO Box 6, Decatur, Michigan 49045. Toll Free (800) 821-6531. Phone (269) 423-7068. Fax (800) 423-7610. Web Site www.special-lite.com. E-Mail info@special-lite.com.

**2.2 FRP FLUSH DOORS**

A. Model: AF-100 Pultruded FRP Door.

| Specifier Notes: Specify the door opening size. |
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B. Door Opening Size: [ \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_ ] [As indicated on the Drawings].

C. Construction:

1. Door Thickness: 1-3/4 inches.

2. Construction: Doors shall be FRP, pultruded as one monolithic panel, with integral stiles.

3. Reinforcement: Solid FRP shapes to be chemically welded at factory. All structural members shall utilize a chemically resistant UV stabilized resin system.

4. Stile Edge: Seamless 9/16” thick solid FRP.

5. Top Rail: 6” pultruded tube profile designed to fit flush and be chemically welded inside the door.

6. Bottom Rail: Pultruded FRP inverted U channel designed to fit flush and be chemically welded inside the door, allowing doors to be field trimmed. Closed bottom rail to be supplied as an option.

D. Face Sheet:

1. Material: Pultruded FRP, 0.125-inch thickness.
2. Texture: Smooth.
3. Fiberglass Content: Minimum 47% by weight.

| Specifier Notes: Specify a color for the FRP. Consult Special-Lite for availability of custom colors. |
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3. Color: [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].

E. Core:

1. Material: Polyurethane foam.

* 1. Density: Minimum of 6 pounds per cubic foot.
  2. Per ASTM E 84 flame spread and smoke developed: Class B.

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

G. Hardware:

1. Pre-machine doors in accordance with templates from specified hardware manufacturers and hardware schedule.

**2.3 MATERIALS**

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

B. Fasteners:

1. Material: Aluminum, 18-8 stainless steel, or other noncorrosive metal.

2. Compatibility: Compatible with 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 before fabrication and show recorded measurements on shop drawings.

C. Assembly:

1. Complete cutting, fitting, forming, drilling, and chemically welding of FRP before assembly.

D. 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. Architectural panels are manufactured with the same face materials as the flush doors. |
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**2.5 ARCHITECTURAL PANELS**

A. FRP Panels:

1. Model: 1 3/4” standard panels.

| Specifier Notes: Specify the size of FRP architectural panels. |
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2. Size: [ \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_ ] [As indicated on the Drawings].

3. Thickness: 1 3/4 inch.

B. Face Sheets:

* 1. Material: Pultruded FRP, 0.125-inch thickness.
  2. Texture: Smooth.

| Specifier Notes: Specify a color for the FRP. Consult Special-Lite for availability of custom colors. |
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3. Color: [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].

| Specifier Notes: Delete the optional insulated FRP panels if not required. |
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C. Insulated FRP Panels:

1. Insulated Panels: Two 0.125-inch minimum thickness sheets.

2. Core: Polyurethane foam core of a minimum of 6 pounds per cubic foot density.

3. Form components to function as single unit.

**2.6 FRP FRAMING SYSTEMS**

A. Framing:

1. Size and Type: As indicated on the Drawings.

2. Materials: ¼” thick solid pultruded FRP profiles having no corrosive components or reinforcement.

3. Width: 2” face.

4. Depth: [5 ¾”] [6 ¾”] [7 ¾”] [8 ¾”] [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_]. Custom sizes available from 4 ½” to 12”.

5. Assembly: [One piece chemically welded at factory] [Knock down (KD) for field assembly].

6. Door Stop: 5/8” x 2 ¼”.

7. Corner Construction: Mitered with 4” x 4” x 3/8” pultruded FRP angle reinforcement with interlocking pultruded FRP brackets.

8. Reinforcing: ¼” pultruded FRP chemically welded at all hinge, strike and closer locations.

9. Mullions: [Fixed Pultruded FRP Centerpost 2” x 5 ¾”] [Fixed Pultruded 2” x 2 3/4” Rim mullion] [Removable Pultruded 2” x 2 3/4” Rim Mullion].

10. Transom and Sidelites: Shall be same material as perimeter frame with removable stop for: [1/4”] [5/8”] [1”] glass by others.

1. Anchors: Furnished with type as specified on drawings.
2. Fasteners for reinforcing: 18-8 Stainless Steel.

**2.7** **HARDWARE**

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

| Specifier Notes: Edit the following two paragraphs as required to specify the hardware and hardware finish. Consult Special-Lite for assistance in specifying hardware for the specific application. |
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B. Hardware Schedule: [As follows] [As specified in Section 08710 (08 71 00)] [As indicated on the Drawings].

1. Hinges: [Butts] [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].

2. Locking Hardware: [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].

C. Flush Bolts/Surface Bolts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

1. Door Pulls: [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].
2. Push Bars: [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].
3. Concealed bottom sweep.
4. Astragal: 1/8” thick Pultruded FRP “T”
5. Threshold: Pultruded Solid FRP Color to Match Frame [5 ¾” x 3/16”] [Saddle Style, ½” overall height] [Bumper Style, ¾” overall height]

| Specifier Notes: Delete the following article if vision lites are not required. |
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**2.8 VISION LITES**

| Specifier Notes: Specify 1/4-inch glass, 5/8-inch glass or 1-inch glass insulating units. |
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A. Factory Applied Stop for Glazing: [1/4-inch glass] [5/8-inch glass] [1-inch glass insulating units].

| Specifier Notes: Specify size of lites. Consult Special-Lite for custom lite requirements. |
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C. Lite Size:

1. Size: [12 inches by 12 inches] [Half lite] [Full lite] [Narrow lite] [Double lite] [ \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_ ] [As indicated on the Drawings]..

| Specifier Notes: Delete the following article if louvers are not required. |
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**2.9 LOUVERS**

A. Type: Pultruded FRP 1/8” thick materials. Fixed inverted “Y” shaped blades. Louver size as indicated on drawings. Finish shall match door.

| Specifier Notes: Specify the size of the louvers. |
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B. Size: [ \_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_ ] [As indicated on the Drawings].

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

| Specifier Notes: Delete the optional insect screen if not required. |
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1. Insect screen. [Brass] [Stainless Steel].
   1. **FINISH**

A. Finish For Doors and Frames: [Primer Only] [Primer with a finished color coat].

* 1. Painted Finish: Two-part aliphatic polyurethane, low VOC, Industrial Coating.
  2. Thickness: 5 mils
  3. Sheen: Gloss
  4. Impact Resistance per ASTM D 2794: 140 in lbs.

**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.

1. Install doors plumb, level, square, true to line, and without warp or rack.
2. Anchor frames securely in place.
3. Set thresholds in bed of mastic and backseal.

E. Install exterior doors to be weathertight in closed position.

F. 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. |
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**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 using a mild detergent and water.

**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**