

SECTION 08220

FIBERGLASS REINFORCED PLASTIC (FRP) DOORS AND ALUMINUM FRAMES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Section includes fiberglass reinforced plastic (FRP) doors and frames.

1.02 REFERENCES

- A. Florida Building Code (FBC).
- B. American Society for Testing and Materials (ASTM) Specifications.
 - 1. A 123 Zinc Coatings.
 - 2. C 591-01 Unfaced Preformed Rigid Cellular Polyisocyanurate.
 - 3. C 728-97 Insulation Board, Mineral Aggregate.
 - 4. E 330-97 Structural Load Test.
 - 5. E 1996 Wind Load Test.
 - 6. E 1886 Impact Test Procedures (inclusive of Large Missile Impact).
- C. Door and Frame Preparation for Hardware, American National Standard Institute Specifications (ANSI).
- D. Recommended Locations for Builder's Hardware, Door and Hardware Institute (DHI).
- E. Aluminum Association, Inc. (AA).
 - 1. AA5005-H14 – Sheet Architectural.
 - 2. AA6061-T6 Heavy Duty Structures.
 - 3. AA6063-T5 Extrusions, Pipe, Architectural.
 - 4. AA DAF-45 Designation System for Aluminum Finishes.
- F. American Architectural Manufacturers Association (AAMA).
 - 1. AAMA 2603-98 Pigmented Organic Coatings
 - 2. AAMA 609 Anodized Architectural Finishes Cleaning and Maintenance.
 - 3. AAMA 611-98 Anodized Architectural Standards.

1.03 PERFORMANCE REQUIREMENTS

- A. Exterior FRP doors shall be designed to meet wind-loading requirements for the FBC. Refer to Structural Drawings for wind and design pressures.

1. All exterior door assemblies shall be compliant with Florida Building Code rule 9N-3 for statewide product approval and require a Florida Product approval number.

1.04 SUBMITTALS

- A. Submit in accordance with Division 1. Include copies of manufacturer's specifications for fabrication and installation including certifications, data and test reports substantiating that products comply with requirements.
- B. Submit shop drawings showing sizes and complete details of doors. Include details of core and edge construction, trim for openings and similar components. Include finishing specifications for doors to receive factory-applied shop finish.
- C. Provide a schedule of doors and frames using same reference designations for details and openings as indicated on the Contract Drawings.
- D. Furnish to the Owner six (6) copies of an Owners Operation and Maintenance Manual in accordance with Division 1. The manual shall consist of maintenance instructions for doors and frames; catalog pages for each product; name, address and phone number of the local representative of each manufacturer; and copy of the approved shop drawings.

1.05 PRODUCT HANDLING

- A. Doors are to be stacked flat in a dry and protected area in original cartons prior to installation. Provide blocking or staging to protect door surfaces. Do not drag doors across one another. Lift doors and carry them into position. Identify each door with individual opening designations, as indicated on the approved shop drawings, using concealed markings.

1.06 WARRANTY

- A. Submit written agreement in door manufacturer's standard form signed by manufacturer, Installer and Contractor, agreeing to repair or replace defective doors which have separated, delaminated from the core, expansion of the core, or otherwise failed due to defects in material and workmanship, improper installation or corrosion from a specified environment, for a period of not less than five (5) years.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with specified requirements, manufacturers offering products which may be incorporated in Work include:
 1. Marshall/Vega Corporation, Marshall, Arkansas.
 2. **Basis of Design:** Cline Aluminum Doors, Inc., Bradenton, Florida.

3. Special-Lite, Inc., Decatur, Michigan (Florida Approval Number FL9875-R3) - Basis of Design Product.
 4. Tiger Door, LLC.
- D. Provide Florida FL Approval Number on FRP Door Shop Drawing Submittal.

2.02 FIBERGLASS REINFORCED PLASTIC (FRP) DOORS

- A. Aluminum Members: Alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish.
- B. FRP Door Composite Components: Minimum 3-ply composite laminated construction to include:
 1. Facing: 0.120-inch (3.05 mm) composite FRP panel exterior grade, UV-protected fiber reinforced polyester panel on interior and exterior faces. Ultraviolet inhibitors shall be maximum amount formulated within the resin. Exterior and interior FRP panels shall be a Class C Flame Spread: Maximum of 75, and Smoke Developed Rating of 450 or less (ASTM E 84)
 2. Surface texture will be pebble embossed with a non-directional pattern.
 3. All mylar transporter fabrication film must be removed from FRP face sheets prior to door fabrication.
 4. FRP face panels shall be USDA accepted with minimal porosity.
 5. Face sheet shall be bonded to core and backup tube from edge to edge of door.
 6. FRP face sheets shall be a Class C Flame Spread: Maximum of 75 and Smoke Developed rating of 450 or less (ASTM E 84), for both interior and exterior faces of interior and exterior doors.
 7. Core: Organic materials shall be used to form a marine grade honeycomb core with high compression strength of 94.8 psi (ASTM C365), and internal aluminum hardware backup tube.
 8. Hardware Backup: The hardware backup tube shall be a minimum 4.25-inches (107.95 mm) in width, 1.375-inches (34.93 mm) in depth with a wall thickness of 0.125-inches (3.18 mm). Contiguous for the full perimeter of the door to allow for all specified and non-specified hardware reinforcement.
 9. Hardware Prep: Basic to include mortise lock edge prep or cylindrical lock prep; and pairs prepped for flush bolts, if required.
 10. Bonding Agent: Environmentally friendly adhesive with strength buildup of 350 pounds per square inch (24.6 kg/cm²).

11. Perimeter Door Trim: Wall thickness of 0.050-inch (1.25 mm) minimum in 6063-T5 extruded aluminum alloy with special beveled edge cap design and integral weather stripping on lock stile.
12. Replaceable Door Trim: Mechanically fastened to the hardware backup tube, allowing for replacement in the field, if damaged.
13. Trim Finish: To have minimum of a Class I anodized finish.
14. Weather stripping: Replaceable wool pile with nylon fabric, polypropylene backing meeting AAMA 701 standards. Applied weather stripping not acceptable
15. Materials: Only nonferrous, non-rusting members shall be acceptable, including tie rods, screws and reinforcement plates.
16. Regulations: All components and agents to meet EPA standards.

2.03 ALUMINUM FRAMES:

- A. Frame Components: Extruded channel (tubular) 6063-T5 aluminum alloy, minimum wall thickness 0.125 inches; cut corners square and joinery shall be mechanical with no exposed fasteners
- B. Profile: Open back with applied stop (OBS), 1.75 inches x 6".
- C. Hinge and Strike Mounting Plates: Extruded aluminum alloy bar stock, 0.187r thick mounted in concealed integral channel with no exposed fasteners.
- D. Door Stop: No screw on stops acceptable.
- E. Frame Finish: Shall be Clear anodic coating; AA-M12C22A31 Class II mechanical finish, non-specular, with chemical medium matte etch, minimum thickness 0.4 mil.

2.04 ACCESSORIES:

- A. Fasteners: Aluminum, nonmagnetic stainless steel, or other material warranted by manufacturer as non-corrosive and compatible with aluminum components.
 - 1. Do not use exposed fasteners.
- B. Brackets and Reinforcements: Manufacturer's high strength aluminum units where feasible, otherwise nonferrous stainless steel.
- C. Bituminous Coating: Cold applied asphaltic mastic, compounded for 30 mil thickness per coat.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify upon delivery that all doors and frames comply with the approved shop drawings and meet the indicated requirements for type, size, location and swing. Examine each opening for conditions that would prevent the proper application of doors, frames and related items. Do not proceed until defects are corrected.

3.02 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and approved shop drawings; set frames plumb, square, level, and aligned to receive doors.
- B. Anchor frames to adjacent construction in strict accordance with recommendations and approved shop drawings and within tolerances specified in manufacturer's instructions.
 - 1. Seal metal-to-metal joints between framing members using good quality elastomeric sealant.
- C. Where aluminum surfaces contact with metals other than stainless steel, zinc or small areas of white bronze, protect from direct contact by one or more of the following methods.
 - 1. Paint dissimilar metal with one coat of heavy-bodied bituminous paint.
 - 2. Apply good quality elastomeric sealant between aluminum and dissimilar metal.
 - 3. Paint dissimilar metal with one coat of primer and one coat of paint recommended for aluminum surface applications.
 - 4. Use non-absorptive tape or gasket in permanently dry locations.
- D. Hang doors with required clearances as follows:

1. Hinge and Lock Stiles: 0.125 inch (3.18 mm).
 2. Between Meeting Stiles: 0.250 inch (6.35 m).
 3. At Top Rails: 0.125 inch (3.18 mm).
 4. Between Door Bottom and Threshold: 0.125 inch (3.18 mm).
- E. Adjust doors and hardware to operate properly.
- F. Install hardware for doors of this section.
- G. Installation of door hardware is specified in Section 08710.

3.03 CLEANING

- A. Upon completion of installation thoroughly clean door and frame surface in accordance with AAMA 609.
- B. Do not use abrasive, caustic or acid cleaning agents.

3.04 PROTECTION

- A. Protect products of this section from damage caused by subsequent construction until substantial completion.
- B. Repair damage or defect products to original specified condition in accordance with manufacturer's recommendations.
- C. Replace damaged or defective products that cannot be repaired to the Architect's acceptance.

END OF SECTION