SECTION 08220 – FIBERGLASS REINFORCED PLASTIC DOORS & FRAMES

PART 1 - GENERAL

1.1 SCOPE

A. Work includes: Fiberglass reinforced plastic doors and frames.

B. Related Work:

1. General Conditions, Supplementary Conditions and Division 1 Sections apply to this work.
2. Section 04200 – Unit Masonry
3. Section 13060 – Insulated Metal Panels
4. Section 08710 – Finish Hardware
5. Section 08800 – Glazing

1.2 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 01300.

B. Indicate Frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement and finish.

C. Indicate door elevations and internal reinforcement.

D. Submit manufacturer's product literature, fabrication descriptions and installation instructions under provisions of Section 01300.

1.3 PRODUCTS HANDLING

A. Deliver, handle and store doors and frames at the job site in such a manner as to prevent damage. Doors shall not be received before the building is enclosed. Only remove cartons upon arrival of doors at job site if cartons are wet or damaged. Doors shall be stored out of weather and/or extreme temperatures. The doors shall be stored in vertical position on blocking, clear of the floor and with blocking between the doors to permit air circulation between the doors. All damaged or otherwise unsuitable doors and frames, when so ascertained, shall be immediately removed from the job site.

1.4 REGULATORY REQUIREMENTS

A. Flame Spread: All FRP component parts, including the gelcoat finish, shall have a flame spread classification of 25 or less per ASTM E84 and shall be self extinguishing per ASTM D635 unless operating conditions dictate otherwise.

B. Resins: Resins to meet with USDA and FDA standards for incidental food contact.

PART 2 - MATERIALS

2.1 MANUFACTURERS

A. Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work included, but are not limited to, the following:

1. FRP Doors & Frames

   a. Corrim Company.

   b. Tiger Door LLC

   c. FRP Doors

2.2 INTERNAL CONSTRUCTION

A. Door Fabrication FRP (Fiberglass Reinforced Plastic) Face Sheets.

1. Face Sheets: Standard face sheets shall be manufactured using a corrosion resistant resin system with light stabilizing additives. The resin shall be reinforced with fiberglass, 40% by weight.
2. Face sheets shall be 0.070" to 0.125" in thickness. Standard being 0.120". Total door thickness to be a nominal 1 ¾".
3. Finish:
   a. Standard gelcoat color to be gray or white.
   b. Special gelcoat color to be selected by the Owner.
   c. 15 mils thick coverage, ±3 mils.
   d. Smooth, seamless finish.

B. Internal Construction

1. Core:

   Option A: Balsa Core.

   Option B:: Polyurethane Foam Core.

   Option C: Honeycomb Core.

   Option D: Mineral Core – fire-rated (1/2 Hour, 3/4 Hour, 1 Hour, 1 ½ Hour).

   a. Core: Balsa core, of end grain construction, shall be laminated to the interior of the panels. The balsa shall have a density of 8.5 – 9.0 lbs./cu. ft. and shall be 1 ½" thick. Compressive strength, perpendicular to the door panel surface shall be 1,400 psi.
   b. Core: Polyurethane core, a 1 ½" : thick rigid block of polyurethane shall be laminated to the exterior panels. The "R" factor shall be 11-12.
   c. Core: Phenolic impregnated resin honeycomb.
   d. Core: Mineral core fire-rated as per schedule. (1/2 Hour, 3/4 Hour, 1 Hour, 1 ½ Hour).

2. Stiles and Rails: Stiles and rails shall be 1 ½" square pultruded fiberglass tubes. A polyester-based resin filled with ¼" chopped glass strands and aerosil shall be used for reinforcements and corner blocks, etc. The bottom rail shall allow 1 ¼:" inches

of height alterability without loss of the panel's integrity. No metal or wood lumber reinforcements will be allowed.

3. Fire-rated openings to be the "Polyfire Series" furnished in strict compliance with UL testing, and in accordance with ASTM-E-152/UL 10B.

C. Hardware Preparations

1. Reinforcement Blocking:

a. Lockset – non-swelling polymer blocking.

b. Surface mounted hardware – non-swelling polymer blocking.

c. Thru-bolted hardware – non-swelling polymer blocking

2. Mortise Hardware:

a. Full mortise hinges – non-swelling polymer blocking

b. Mortise locksets – to suit template provided

c. Exit devices – to suit template provided

3. All doors shall be mortised and reinforced to allow application of hinges and locks, in accordance with hardware schedule and manufacturer's templates. The hinges shall be attached by using stainless steel wood screws. Pilot holes shall be in strict accordance to manufacturer's recommendations.

D. Door Accessories:

1. Glazing: Glass support structures shall ensure that the glass area is weathersealed as not to permit moisture to enter the core of the door. This is to be accomplished by utilizing pultruded FRP tubes to fabricate the window opening. Glazing must allow for ready access for repair, in the event of damage or replacement, without affecting the sealed integrity of the cutout in the door panel itself. Openings cut directly into the core material will not be allowed.

2. Louver: Louvers shall be fabricated of FRP material of an inverted "v" design, and shall be subject to the same performance guarantee as the door panel. The louver opening will be fabricated in the same method as for glazing above.

3. Fasteners: Provide stainless steel fasteners as required for glazing openings and louvers.

4. Astragals: Astragals for pairs of doors to be fabricated of FRP material of manufacturer's standard flat design.

2.3 FRAMES

A. Frame Fabrication FRP (Fiberglass Reinforce Plastic)

1. Jamb Depth: 5 ¾" standard. Widths over/under 5 ¾" available upon request, refer to frame schedule for exact sizes.

2. Face Dimension: 2" standard.

3. Return: 7/16".

4. Stop: 5/8"

5. Rabbet: 1 15/16".

6. Corner Miter: Head and Jamb members shall be standard 45° miter, providing a neatly mitered corner connection, fabricated for Knocked Down (KD) field assembly.

7. Pultrusion: In compliance with pultrusion industry standards.

B. Reinforcements and Braces/Supports:

1. Corner Reinforcement: 4” x 4” x 5 3/8” x 1/4" thick pultruded fiberglass angle. Attached to head bar at factory using stainless steel screws or suitable polymer rivets.

2. Mortise Hinge Reinforcement: 1 ½” x 7” x ¼” thick polymer. Attached to frame by means of bonding and stainless steel countersunk screws.

3. Closer Reinforcement: Same as mortise hinge reinforcement, less screws.

4. Strike Reinforcement: 1 ½”: x 9” x ¾” thick polymer material. Attached to frame by means of bonding and stainless steel countersunk screws or suitable polymer rivets.

C. Anchoring Systems

1. “T”-Strap or Wire Anchor for masonry construction.

2. Concealed existing wall anchor if necessary.

D. Finish

1. Gelcoat: 15mils thick, ±3 mils on all exposed surfaces. Color to match door unless otherwise indicated.

2.4 FABRICATION

A. Fabricate FRP doors and frames as shown on the drawings and in accordance with best shop practices. Frames shall be rigid, neat in appearance and free from defects. Field measurements shall be taken as required for coordination with adjoining work.

B. Form exposed surfaces free from warp, wave and buckle, with all corners square, unless otherwise shown. Set each member in proper alignment and relationship to other members with all surfaces straight and in a true plane.

C. Reinforce members and joints with plates, tubes or angles for rigidity and strength.

D. Doors and frames shall be mortised and reinforced for hardware in accordance with the hardware manufacturer’s instructions and templates. The reinforcing shall be designed to receive hinges, locks, strikes, closures, etc.

E. Mortar guard boxes shall be provided for hardware cutouts in frames.

F. Furnish at least three (3) metal anchors or polymer spacers in each jamb of frames up to 84” high and one (2) additional anchor for each 24” in height above 84”, in shapes, sizes and spacing shown or required for anchorage into adjoining wall construction. Fabricate joint anchor of stainless steel.

G. Terminate bottom of frames at the indicated finished floor level.

H. Provide clearance for doors of 1/8” at jambs and heads; ¼” clearance above threshold.

PART 3 – EXECUTION

3.1 INSPECTION

A. Installer shall examine the substrate and conditions under which fiberglass reinforced plastic work is to be installed and notify the General Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work

until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 INSTALLATION

A. General: Install FRP doors, frames and accessories in accordance with final shop drawings, NFPA 80 standards at fire-rated openings, and as herein specified. Installation to be similar to that of hollow metal doors and frames, and in accordance with FRP manufacturer's written instructions.

B. Frame Installation:

1. Place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged. Frame must not be drilled for brace supports as finish may be damaged.

2. In masonry construction, locate three (3) wall anchors per jamb at hinge and strike levels. Frames may be grouted full of mortar at jambs and anchors shall be built into the joints as walls are laid up. A continuous bead of silicone sealant is to be applied between the head and jamb at the miter joint.

C. Door Installation

Fit FRP doors accurately in frames, within clearances specified in Paragraph 2.4H of this section.

3.3 TOLERANCES

A. Maximum Diagonal Distortion: 1/8" measured with a straight edge, corner to corner. Maximum measurable plane is 4-0' x 7-0'.

3.4 ADJUSTING

A. At substantial completion, adjust all operable components to ensure proper installation and that they function smooth and freely.

3.5 CLEANING

A. Remove dirt and excess sealant from exposed surfaces. Follow the manufacturer's recommended cleaning techniques and procedures for cleaning all surfaces. Use only cleaning products that will not scratch or damage the surfaces, and are recommended by the manufacturer.

B. Remove debris from project site.

3.6 WARRANTY

A. To include one (1) year free from defects in materials and workmanship from date of shipment, and ten (10) years from degradation or failure due to corrosion from date of shipment, provided that the structural integrity of the doors and frames have not been violated or compromised. (No unauthorized cuts, bores, or other structural alterations affecting the core of the door, or the structure of the frame.)

B. Normal wear and tear, or physical abuse of a specific installation is not part of this warranty.

END OF SECTION 08220