SPECIFICATIONS: Phoenix Door Systems Osprey FRP

SECTION 08220 – FIBERGLASS (FRP) DOORS AND FRAMES

PART 1 – GENERAL

1.1 – SECTION INCLUDES

A. Fiberglass reinforced polymer (FRP) Doors
B. Fiberglass reinforced polymer (FRP) Frames

1.2 – RELATED SECTIONS

A. Applicable provisions of Division 1 shall govern all work under this section
B. Division 4 Section "Unit Masonry Assemblies" for installing anchors and grouting frames in masonry construction
C. Division 8 Section "Door Hardware" for door hardware
D. Division 8 Section "Glazing" for glass in doors and frames
E. Division 9 Section "Painting" for field painting factory-primed doors and frames

1.3 – QUALITY ASSURANCE

A. Construction: Verify that FRP doors and frames are manufactured utilizing pultruded fiberglass components
B. Resins: Resins shall comply with USDA and FDA standards for incidental food contact
C. Flame Spread Rating: Flame retardant structural shapes meet the minimum flame spread rating less than or equal to 25 when tested according to ASTM E84
D. Physical Endurance: **Testing in progress as of 12/1/20 for** FRP Doors and frames **to** successfully complete 1,000,000 cycles Grade A swing test in compliance with ANSI/SDI A250.4-2011**.**
E. Impact Strength: FRP doors 10.32 foot-pounds per inch, ASTM D-256**.**
F. Tensile Strength:
    1. FRP doors 12,000 psi, ASTM D-638**.**
    2. FRP frames 30,000 psi, ASTM D-638**.**
G. Flexural Strength: FRP doors and frames 25,000 psi, ASTM D-790**.**
H. Compressive Strength:
    1. FRP doors 18,000 psi, ASTM D-695**.**
    2. FRP frames 30,000 psi, ASTM D-695**.**
I. Water Absorption: FRP doors and frames .27%, ASTM D-570**.**
J. Hardware Reinforcements: FRP doors and frames fabricated with a minimum screw holding strength of 1,000 lbs. Tested with a #12 x 1-1/4" hinge screw.
K. Warranty: Life of the initial installation against failure due to corrosion. Additionally, **lifetime warranty** against failure due to materials and workmanship from date of substantial completion.

1.4 - SUBMITTALS

A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details and finishes.

1.5 – DELIVERY, STORAGE AND HANDLING

A. Deliver doors and frames crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
B. Inspect doors and frames on delivery for damage and notify shipper and supplier if damage exists. Minor damages may be repaired provided refinished items match new work and are acceptable to the Architect. Remove and replace damage**d** items that cannot be repaired as directed.
C. Store doors and frames at building site under cover. Avoid using non-vented plastic or canvas covers that could create a humidity chamber.

PART 2 – PRODUCTS

2.1 – MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Phoenix Door Systems - 6350 Castle Drive - Mason, OH 45040
      Phone: 888-263-4082

2.2 – DOORS

A. Interior Doors: Provide doors complying with requirements indicated below:
   1. **Osprey FRP** (Heavy Duty)**.**
   2. Doors to have at least two internal full height vertical FRP stiffeners for warp resistance.
   3. Poly**styrene** foam core standard.

B. Fire-rated Doors: Provide doors complying with the requirements indicated below:
   1. **Osprey FRP testing in progress as of 12/1/20.**
   2. Doors to have fire-rating as indicated per schedule.
   3. Fire resistant mineral core.

C. Vision Lite Systems: Lite cutout shall be built-in during door assembly, utilizing FRP tubing.

D. Door Louvers: Provide sight-proof louvers for doors, where indicated. Stationary louvers to be manufactured using fiberglass inverted "V" blades. Louver cutouts shall be completely sealed in the same manner as lite cutouts.

E. Transom/side Panels: Panels to be identical to the door construction and materials – if applicable to this project.

2.3 – FRAMES

A. General: Provide pultruded fiberglass frames for doors, transoms, sidelites and borrowed lites - if applicable to this project.

B. Frames: Fiberglass frames to be constructed of 3/16" (0.1875 inch) wall thickness fiberglass pultrusions. Profile must be of standard hollow type to permit installation into new concrete and block walls or slip-on drywall installations.

C. Door Silencers: Except on weather-stripped frames, utilize stick-on type silencers, three on strike jambs of single-door frames and two on heads of double-door frames.

D. Plaster Guards: Provide plaster guards or mortar boxes at back of hardware cutouts where mortar or other materials might obstruct hardware operation.

E. Supports and Anchors: Fabricated from no less than 1/8" (0.125 inch) thick pultruded fiberglass tubing.
   i. New Masonry Construction: Provide wire type anchors.
   ii. Existing Masonry Construction: Provide six (three per jamb) expanding sleeve bolts, 3/8**" (0.375 inch)** diameter, 4**"** length.
   iii. New Steel or Wood Stud Construction: Provide multi-purpose type fiberglass anchor supports in backside of frames for attachment from the stud wall into the frames anchor supports. This installation must take place prior to setting drywall.
   iv. Existing Steel or Wood Stud: Provide knock-down (KD) drywall slip-on frame anchoring system – compression type.

2.4 – FABRICATION

- **A.** General: Fabricate fiberglass door and frame units to be rigid and free from defects including warp and buckle.
- **B.** Core Construction: Manufacturer's standard core construction that complies with the following:
  1. **Osprey** series to have expanded polystyrene or polyurethane foam core as indicated.
  2. **Osprey** series to have fire resistant mineral core.
- **C.** Stiles and Rails: Fabricate doors using FRP pultrusions.
- **D.** Door Faces: Fiberglass face skins shall be fused to the stile and rail assembly, including the vertical stiffeners and core material, utilizing polyurethane adhesive.
- **E.** Clearances: Not more than 1/8" **(0.125 inch)** at jambs and heads. Not more than 1/4" **(0.25 inch)** between pairs of doors. Not more than 3/4" **(0.75 inch)** at bottom unless indicated otherwise.
- **F.** Door Edges: Lock stile to be factory beveled 3 degrees, standard.
- **G.** Tolerances: Maximum diagonal distortion 1/8" **(0.125 inch)** measured with straight edge, corner-to-corner.
- **H.** Hardware Reinforcement: Fabricate all hardware reinforcements using FRP pultrusions.
- **I.** Exposed Fasteners: Unless otherwise indicated, provide stainless steel, countersunk flat or oval heads for exposed screws and bolts.
- **J.** Thermal-Rated (insulating) Assemblies: At exterior locations, provide doors as thermal-insulating, with an "R" value of 11-12.
- **K.** Hardware Preparations: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier.
- **L.** Frame Construction: Fabricate frames to size and shape shown on drawings.
  1. Fabricate frames with mitered resin-welded corners and seamless face joints when indicated.
  2. Provide set-up and resin welded frames with temporary spreader bars.
  3. Provide 4 or 6 inch terminated/hospital stops – where indicated.
- **M.** Hardware Locations: Locate hardware as indicated on shop drawings or**,** if not indicated, according to manufacturer's standard locations.
- **N.** Glazing/Louver Stops: Two-piece PVC lite and louver kits.
  1. Provide screw-applied, removable, glazing stops on inside of opening, louvers**,** and other panels in doors.
  2. Glass to be supplied and installed under section 08800, unless stated otherwise.
- **O.** Astragals: Fabricate flat astragals for pairs of doors using fiberglass materials – where indicated.

2.5 **– FINISHES**

A. Prime Finish: Pre-clean and shop prime each door and frame ready for finish painting, performed at the jobsite under Section 09900.
   1. Where indicated, furnish fiberglass doors and frames factory pre-finished.
      a. Sheen: Semi-gloss

PART 3 – EXECUTION

3.1 – INSTALLATION

- **A.** General: Install FRP doors, frames**,** and accessories according to shop drawings, manufacturer's data**,** and as specified.
- **B.** Placing Frames: Set frames accurately in position, plumbed, aligned**,** and braced securely until permanent anchors are set.
  1. Except for frames located in existing walls, place frames before construction of enclosing walls and ceilings.
  2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge locations on hinge jamb and at corresponding heights on strike jamb**, u**tilizing masonry wire anchors.
  3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with stainless steel expansion bolts.
  4. For openings 90" or more in height, install an additional anchor at hinge and strike jambs.
- **C.** Factory Finished Doors: Restore finish before installation if fitting or machining is required at Project site.
- **D.** Door Installation: Fit fiberglass doors accurately in frames. Shim as necessary.

END OF SECTION 08220