

SECTION 08900

FIBERGLASS RESIN TRANSFER MOLDED WALL WINDOW FRAMES

STYLES 4, 5, 6 & 7 STANDARD CONSTRUCTION SERIES MANUFACTURED IN THE UNITED STATES OF AMERICA

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section Includes The Following:
1. Fiberglass Resin Transfer Molded Fixed Wall Windows

1.2 RELATED SECTIONS

- A. Related Sections Include The Following:
1. Division 0 – Bidding and Contract Requirements
 2. Division 1 – General Requirements
 3. Division 8 – Glazing

1.3 QUALITY ASSURANCE

Test certification by an independent and accredited laboratory is required for the properties listed in this Quality Assurance section. Reports shall be made available upon request for each of the standards and certifications described below.

A. Reference Standards

1. Window Frame Properties
 - a) ASTM D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position..
 - b) ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
2. Laminate Properties
 - a) ASTM D 638 Tensile Strength Properties of Plastic
 - b) ASTM D 790 Flexural Strength Properties of Plastic
 - c) ASTM D 2583 Indention Hardness of Plastics
 - d) ASTM D 256 Izod Pendulum Impact Resistance
 - e) ASTM D 792 Density/Specific Gravity Of Plastics
 - f) ASTM D 1761 Mechanical Properties of Fasteners
3. Core Properties
 - a) ASTM C 177 Thermal Properties of Materials
 - b) ASTM D 1622 Density and Specific Gravity
 - c) ASTM E 84 Surface Burning Characteristics of Materials

B. Qualifications

1. **Manufacturer Qualifications:** A company specialized in the manufacture of fiberglass reinforced plastic (FRP) products **with a minimum of 30 years documented experience** and that is able to produce substantiated records of multiple installations where products have been in **continuous service without issue** for the warranted period of 25 years or longer.
2. **Installer Qualifications:** An experienced installer who has completed fiberglass window frame installations similar in material, design, and extent to those indicated and whose work has resulted in construction with a record of successful in-service performance.

1.4 SUBMITTALS

- A. Product Technical Data Including:
 1. Acknowledgment that products submitted meet requirements of standards referenced.
 2. Manufacturer shall provide certificate of compliance with current local and federal regulations as it applies to the manufacturing process.
 3. Manufacturer's installation instructions.
 4. **Schedule of wall window frames** indicating the specific reference numbers used on the **owner's project documents, window type, frame style, size and glazing requirements.**
 5. Certification of manufacturer's qualifications.
- B. Submittal Drawings for Customer Approval Shall be Submitted Prior to Manufacture and Will Include the Following Information and Formatting:
 1. **Summary schedule indicating the specific reference numbers as used on owner's drawings, with columns noting window type, frame style, size and glazing requirements.**
 2. **Dimensioned elevation of each type of wall window frame**
 3. **Drawing depicting head, jamb and sill for each type of wall window frame.**
 4. **Individual part drawing and specifications for each FRP part or product.**
 5. **Construction and mounting detail for each frame type.**
- C. Samples:
 1. **Provide one complete manufactured sample which represents all aspects of the typical manufacturing process, including molded in gelcoat color. One edge should expose the interior of the window frame depicting the unique characteristics of its construction.**
- D. Operation and Maintenance Manual
 1. Include recommended methods and frequency for maintaining optimum condition of fiberglass frames.
 2. Include one set of final as built drawings with the same requirements as mentioned in Section B above.
 3. Include certificate of warranty for window frames listing specific registration numbers.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Each window frame shall be delivered **individually crated** for protection from damage in cardboard containers, **clearly marked** with project information, tag location and specific reference number as shown on drawings and shipping information. **Each crate shall contain all fasteners necessary for installation as well as complete installation instructions.**
 1. Window assemblies up to 4' x 8' will ship factory assembled. Larger sizes will be shipped knocked down.
 2. Accept only sealed, crated and labeled wall window assemblies at site.
 3. Windows shall be stored in the original container on edge, out of inclement weather for protection against the elements.
 4. Handle window frames pursuant to the manufacturer's recommendations as posted on outside of crate.

1.6 WARRANTY

- A. All fiberglass window frames have a lifetime guarantee against failure due to corrosion. Additionally, fiberglass window frames are guaranteed for ten years against failure due to materials and workmanship, including warp, separation or delamination, and expansion of the core.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

- A. **Chem-Pruf Door Co., Ltd., P.O. Box 4560 Brownsville, Texas 78523 Phone: 1-800-444-6924-7943, Fax: 956-544-7943, Website: www.chem-pruf.com**
- B. Substitutions may be considered provided manufacturer can comply with the specifications as written herein and said products are manufactured in the United States of America. Requests for substitution must be submitted in writing no less than 10 days prior to bid date. Substitution request to include a physical sample and written documentation that product will meet the specific manufacturing methods as highlighted below.

2.2 WINDOW FRAMES

- A. **Frames** shall be **fiberglass** and manufactured using **the resin transfer method creating one solid piece** (no voids) with complete uniformity in color and size. Beginning with a minimum **25 mil gelcoat layer molded** in and a minimum of two layers of continuous strand fiberglass mat saturated with resin, the frame will be of one-piece construction with molded stop. All frame profiles shall have a core material of 2 psf polyurethane foam. **Pultruded fiberglass frames will not be accepted.**
- B. **Finish** of frame shall be identical to the door with **25 mil resin-rich gelcoat of the specified color integrally molded** in at time of manufacture. To achieve optimum surface characteristics, the gelcoat shall be cured within a temperature range of 120F to 170F creating **an impermeable outer surface, uniform color throughout, and a permanent homogeneous bond** with the resin/fiberglass substrate beneath. Only the highest quality gelcoat will be used to ensure enduring color and physical properties. Paint and/or post application of gelcoat result in poor mechanical fusion and will be deemed unacceptable for this application. The finish of the **window frame must be field repairable** without compromising the integrity of the original uniform composite structure, function or physical strength.
- C. **Jamb/Header** connection shall be mitered for tight fit. Optional seamless one piece frame construction as indicated on the project schedules and related details.
- D. **Internal Reinforcement** shall be continuous within the structure to allow for mounting of specified hardware. Reinforcing material shall be a **dense matrix of cloth glass fibers and premium resin** with a minimum hinge **screw holding value of 1000 lbs per screw. All reinforcing materials shall be completely encapsulated.** Documented strength of frame screw holding value after third insert must be submitted. Dissimilar materials, such as steel, will be deemed unacceptable as reinforcement for hardware attachment.
- E. **Mortises** for hardware shall be accurately machined by **CNC** to hold dimensions to +/- 0.010 inch in all three axis.

PART 3 – EXECUTION

3.1 INSTALLATION CONDITIONS

- A. Verification of Conditions
 1. Verify openings are correctly prepared to receive frames.
 2. Verify openings are correct size and depth in accordance with submittal drawings.
- B. Installer's Examination
 1. Installer shall examine conditions under which construction activities of this section are to be performed and submit a written report to general contractor if conditions are unacceptable.
 2. General Contractor shall submit two copies of the installer's report to the architect within 24 hours of receipt.
 3. Installer shall not proceed with installation until all unacceptable conditions have been corrected.

3.2 INSTALLATION

- A. Window frames shall be delivered at job site **individually crated**. Each crate to be clearly marked with the specific opening information for quick and easy identification.
- B. Install window frame assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.
- C. Field alteration of window frames to accommodate field conditions is strictly prohibited.
- D. Site tolerances: Maintain plumb and level tolerance specified in manufacturer's printed installation instructions.

3.3 CLEANING

- A. Clean all surfaces in accordance with respective manufacturer's maintenance instructions.

3.4 PROTECTION OF INSTALLED PRODUCTS

- A. Protect window frame assemblies from damage by subsequent construction activities until final inspection.

End of Section