

Chem-Pruf Pultrusion Fixed Sash (Fixed Windows)

Specification SECTION 08 50 00

Fiberglass Windows

PART 1 - GENERAL

1.01 SCOPE AND DEFINITIONS

- A. Furnish and install fixed sashes of FRP composite construction in accordance with details and schedule shown on the project drawings and as specified herein. Fixed sash products of aluminum, steel or wood constructions are strictly excluded.
- B. FRP is defined as "Fiberglass Reinforced Polyester"

1.2. RELATED SECTIONS

- A. Section 04 00 00: Masonry mortar
- B. Section 05 50 00: Steel lintels
- C. Section 06 20 00: Finish Carpentry
- D. Section 08 80 00: Glazing

1.03 QUALITY ASSURANCE

- A. Referenced Standards
  - 1. American Society for Testing and Materials (ASTM)
  - 2. Society of Automotive Engineers (SAE)
  - 3. International Building Code, Plastics (Chapter 26)
- B. Experience: Manufacturer shall be engaged in the manufacture of FRP door and frame systems for a minimum of twenty five (25) years documented experience prior to the start of this work, and who has a history of successful production acceptable to the Architect.
- C. Referenced Standard: Where labeled fixed sashes or fixed windows are required, fiberglass fixed sashes shall be UL listed and shall be tested successfully to UL9 / UBC 7-4 (1997) standards.
- D. Warranty: Provide written limited guarantee for FRP Fixed Sash as follows:
  - 1. Fiberglass fixed sash (fixed windows): Fiberglass fixed sashes and windows are guaranteed for the life of the product against failure due to corrosion from the specific chemical environment named at the time of purchase. Furthermore, all products are inspected prior to shipment and guaranteed against defective workmanship for a period of ten (10) calendar years after the date of purchase.

1.04 SUBMITTALS

- A. Product Data: Provide catalog cut of FRP fixed sashes detailing internal construction, reinforcements and materials used.

- B. Shop Drawings: To include the following specific information:
  - 1. Specifications relating to method of construction, finish color, type of glass and glazing, anchor systems, joint construction and complete warranty information.
  - 2. Complete schedules or drawings of FRP fixed sashes showing identifying mark numbers, door and frame types, typical elevations, nominal sizes, handing, actual dimensions and clearances, and required hardware preps and reinforcements.
  - 3. Supporting reference drawings pertaining to fixed sash mounting details.
- C. Color Samples: Provide a complete set of available finish colors from the manufacturer for color selection upon request.
- D. Installation instructions: Include manufacturer's specific information describing procedures, sequence and required fasteners for frame and door installation.
- E. Production of FRP fixed sashes shall not proceed until final approval of submittals and all necessary manufacturing information is received from customer.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. FRP fixed sashes are delivered to your site in adequate crating with foam sheet separations.
- B. Upon receipt of shipment, remove and inspect the fixed sashes for damage. Note any damage on the shipping papers prior to accepting. If there is any noted (visible or concealed) damage, notify Chem-Pruf at 1-800-444-6924, immediately.
- C. Handling and storage of the fixed sashes after receipt is the responsibility/liability of the customer. It is recommended that the fixed sashes be stored indoors in a vertical position, clear of the floor, with blocking between the fixed sashes to permit air circulation between the fixed sashes and prevent damage. Rain/water or condensation must not be allowed to collect or lay between stored fixed sashes. Do not wrap in plastic sheeting as it will promote condensation formation within. Permanent discoloration can result. Failure to comply with the receiving and reporting instructions shall void the Chem-Pruf warranty.
- D. Use care in handling FRP fixed sashes to prevent damage to factory finishes. Wear protective gloves and do not slide or drag fixed sashes against one another.

### PART 2 - PRODUCTS

#### 2.01 Manufacturer

- A. FRP fixed sashes shall be as manufactured by Chem-Pruf, 5224 FM 802 Brownsville, TX 78521  
ph 800.444.6924 website: [www.chem-pruf.com](http://www.chem-pruf.com).

#### 2.02

- A. Non-fire rated FRP Fixed Sashes and Window Walls:
  - 1. Design: FRP Fixed Sashes and Window Walls furnished under this specification shall utilize a high-modulus pultruded structural FRP shape. The fixed sash and window frame section shall be standard double rabbeted 5-3/4" deep x 2" face, 3/16" thick, with integral 5/8" stops to match typical hollow metal configurations. Additional jamb profiles and widths are available.
  - 2. Corner Joints: Frame jambs and header shall be joined at corners via miter connections with hidden FRP angle clips and associated fasteners. Post and beam corners will not be acceptable.
  - 3. Butt Joints: All mechanically fastened butt joints shall be secured with hidden fasteners and internal FRP tube blocking.

4. Hardware Reinforcements: FRP reinforcing shall be chemically welded to fixed sash and window frame material at required locations. Mechanically fastened reinforcements are not permitted.
  5. Anchors:
    - a. BOLT-IN: Provide manufacturer's required number of 3/8" diameter x 4" long flat head stainless steel sleeve anchors for masonry openings, 3/8" diameter x 4" machine screw with nut and washers for structural steel openings, #14 x 4" stainless steel flat head sheet metal screws for wood or steel stud openings. Include extra anchors for additional frame height in two foot increments above 8'-0". Provide single bolt anchor at center of all headers over four feet in nominal width. Stainless Steel fasteners shall be furnished by the factory.
    - b. GROUT-IN: Provide manufacturer's required number of wire or strap type masonry anchors for installation into block wall. Fill frame cavity with grout.
  6. Finish: Fixed sash shall have a 3-4 mils (wet) factory applied two-part aliphatic polyurethane fully cured coating of industrial urethane. Industrial urethane chemical coating color topcoat, to match the color and sheen of the doors, for superior weatherability. Gelcoat may not be sprayed onto the frame as a secondary coating.
- B. Fire rated FRP Fixed Sashes:
1. Design: Fire rated FRP fixed sash furnished under this specification shall utilize a high-modulus pultruded structural FRP shape. Standard frame profile is a double rabbeted 5/4" depth x 2" face, 3/16" thick, with integral 5/8" doorstop. The minimum frame section shall be limited to a 4" jamb depth, 1" face. Four inch header and expanded profiles are acceptable. Frame cavities shall be filled with a proprietary fire resistant composite formulation with a minimum density of 25 lb/ft<sup>3</sup>. Hollow metal or Stainless Steel frames are not acceptable
  2. Corner Joints: KD jambs and header shall be joined at corners via miter connections. Post and beam corners will not be acceptable.
  3. Hardware Reinforcements: FRP reinforcing shall be chemically welded to fixed sash and window frame material at required locations. Mechanically fastened reinforcements are not permitted.
  4. Anchors:
    - a. Provide manufacturer's required number of 3/8" diameter x 4" long flat head stainless steel sleeve anchors for masonry openings, grouted wire anchors for grouted installations. Stainless Steel bolts shall be furnished by the factory.
  5. Finish: Fixed sash shall have a 3-4 mils (wet) factory applied two-part aliphatic polyurethane fully cured coating of industrial urethane. Industrial urethane chemical coating color topcoat, to match the color and sheen of the doors, for superior weatherability. Gelcoat may not be sprayed onto the frame as a secondary coating.

## 2.03 MECHANICAL PROPERTIES AND TEST PERFORMANCE

- A. Pultruded structural shapes shall exhibit the following minimum longitudinal coupon properties (per ASTM):
  1. Tensile strength (D638) 30,000 psi
  2. Comprehensive strength (D695) 30,000 psi
  3. Flexural strength (D790) 30,000 psi
  4. Flexural modulus (D790) 1,600,000 psi
  5. Shear strength (D2846) 4,500 psi
  6. Impact, notched (D256) 25 ft-lb/in
  7. Barcol hardness (D2853) 50
  8. Fire Resistance (E-84) Class I

- B. Adhesive shall exhibit the following minimum coupon properties (per SAE)
  - 1. Tensile Strength (D882-83A modified) minimum 2000 psi
  - 2. 8 day 25° C at 100% humidity Cross Peel (SAE J1553) minimum 330 psi
  - 3. 7 day immersion in seawater Cross Peel (SAE J1553) minimum 330 psi
  - 4. 30 day immersion in saltwater Cross Peel (SAE J1553) minimum 330 psi
  - 5. 72 hour immersion in gasoline Cross Peel (SAE J1553) minimum 330 psi
  - 6. 72 hour immersion in 20% sulfuric acid Cross Peel (SAE J1553) minimum 300 psi

## 2.04 FASTENERS

- A. All fasteners for all hardware shall be type 304 CRSS (18-8 series corrosion resistant stainless steel) with no exception. No carbon steel or aluminum components shall be used.

## PART 3 - EXECUTION

### 3.01 IDENTIFICATION

- A. Factory mark all fixed sashes using a chemical resistant plastic tag or indelible marker with identifying number, keyed to shop drawings, prior to shipment.

### 3.02.1 INSTALLATION

- A. Fixed Sash: Install in strict accordance with manufacturer's printed instructions. Set plumb and square, using shims for bolt-in of existing openings, or wood bracing prior to grouting of jambs. Use at least two 2x6 wood spreaders inside frame to maintain critical opening dimensions during grouting.
- B. Glazing: Install glazing per industry standard methods and procedures. Glass, gasketing and glazing blocks will be furnished by others and field installed unless quoted as factory furnished.

### 3.03 CLEANING

- A. Clean exposed surfaces of FRP doors and frames with a mild, non-abrasive cleaner and water.

END OF SECTION