

## **GUIDE SPECIFICATIONS**

### **General Related Documents:**

Drawings and general provisions of the contract.

### **Description of Work:**

- A. Provide prefabricated fiberglass reinforced plastic (FRP) shapes for architectural purposes.
- B. Work includes: Restoring and/or sculpting of existing ornamentation of new trim, mold making, production molding and shop fabrication.

### **Related Work:**

Specifications for structural steel framing, primary support of FRP panels and joints between adjacent FRP panels and at perimeter of FRP panel field shall not be part of this specification.

### **Building Code Compliance:**

All work shall conform to building codes as supplied by contracting authority.

### **System Performance:**

- A. When installed, the FRP parts shall be capable of withstanding positive and negative wind pressure without structural failure, cracking, crazing, permanent distortion or displacement.
- B. Allowable design stresses and resistances shall be conservatively selected by engineer.
- C. Load Bearing Strengths: The maximum temporary deflection due to all loads shall not exceed  $1/360$  or the distance between supports.
- D. Thermal Movement: Design, fabricate and install component parts to provide for expansion and contact over an ambient temperature range of 120 without damage.

### **Job Conditions:**

Verify dimensions at the job site and adjust final shop drawings and fabricated parts to actual field measurements.

### **Quality Control:**

- A. Fabricator shall institute quality control procedures for manufacture of FRP units to control color, texture, dimensions, lines, surfaces and strength of materials.
- B. Manufacturer:
  - 1. Manufacturer shall demonstrate its ability and capacity to produce products of the quality and of the project requirements.
  - 2. Manufacturer Fabricator shall have been actively involved in FRP Production for at least three (3) years.
  - 3. Acceptable Manufacturer: Seal Reinforced Fiberglass, Inc., 23 Bethpage Road, Copiague, New York 11726 **OR** a qualified and approved equal.

### **Submittals:**

- A. Shop drawings.
  - 1. Submit shop drawings showing complete information for the fabrication and installation of FRP units. Indicate number dimensions, cross-section, location, size and type of reinforcement including special reinforcement necessary for handling and sectioning.
  - 2. Provide layout. Dimensions and identification of each FRP unit corresponding to the sequence at procedure installation. Indicate location and details of anchoring devices that are to be embedded in other construction.
  - 3. Samples. Submit two (2) sets of sample (approximately 6" x 12") to illustrate quality, color and texture of finished surface. Approved samples shall become the standard for judging work.

### **Material Surface:**

- A. The molded exterior surface of the FRP unit shall consist of U-V inhibited, sanitary grade NPG-ISO polyester gel coat.
- B. Wet film thickness should be 18 to 22 mils thick.
- C. Gel coat shall be color matched to sample supplied by Architect.
- D. Where applicable.

### Back Up Laminate:

- A. Resin.
  - 1. Fire retardant, Isophthalic Polyester Resin.
  - 2. Fire retardant to be class 1 per ASTM E-84 test method (flame spread rating of 25 or less).
- B. Fibrous Glass Reinforcement.
  - 1. "E" type fiberglass.
  - 2. Random chopped glass fibers.
  - 3. Glass content approximately 25% to 30% (15% for filled resin systems).
- C. Laminate Thickness.
  - 1. Normal thickness approximately 3/16" type.
  - 2. Additional thickness and reinforcement and sandwich structures used where necessary for structural strength.

### Average Mechanical Properties:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
Tensile strength	12,000 psi	ASTM D638
Flexural strength	16,000 psi	ASTM D790
Flexural Modulus	$0.9 \times 10^6$ psi	ASTM D790
Compressive strength	18,000 psi	ASTM D695
Bearing strength	10,000 psi	ASTM D838
Thermal expansion	$10 \times 10^{-6}$	(in/in/°F)
Weight/surface area	1 PSF	

### Note:

Certain applications may be best suited to specialty resins not capable of meeting the above mechanical strength values. Such resins will be allowed with compensatory increases in minimum thickness.

### Related Materials:

Attachment and/or hanging structures (supplied by others) shall be of stainless steel, galvanized steel or created wood blocking. All hardware (supplied by installers) shall be galvanized or stainless steel.

**Execution/Installation (by installation contractor):**

- A. Lift place and secure FRP units in accordance with manufacturers shop drawing and as acceptable to architect.
- B. Protect units from damage during field operations.
- C. Caulk all joints with approved elastomeric sealant.
- D. Assure conformity of all as-built structural and attachment substrate dimensions to the allowable tolerance for proper installation of prefabricated FRP components.
- E. Coordinate delivery and installation of prefabricated FRP components with the work of other traders.
- F. Confirm the acceptance of all underlying structure and/or attachment substrate prior to allowing installation of FRP components to proceed.
- G. Do not allow work involving the use of resin or resin-based materials to proceed at temperatures below 55 degrees F.

**Warranty:**

- A. The minimum acceptable warranty provisions for FRP components shall be:
  - 1. All FRP components will follow all approved drawings and specifications.
  - 2. Materials and workmanship will meet or surpass industry standards for similar molded FRP components.
  - 3. Any elements found to be defective in materials or workmanship will be either repaired or replaced.
  - 4. The minimum warranty period is one (1) year from completion of project.