

## SECTION 06 82 00 GLASS FIBER REINFORCED PLASTIC

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. This section includes furnishing all materials, labor, equipment, and related services necessary to supply and install architectural glass fiber reinforced plastic fabrications as indicated in the contract documents, and in compliance with applicable codes.

#### 1.02 RELATED SECTIONS

- A. Section 06 60 00 Plastic Fabrications
- B. Section 06 80 00 Composite Fabrications
- C. Section 06 10 00 Rough Carpentry - for connection attachment to structural wood framing.
- D. Section 05 12 00 Structural Steel - for connection attachment to structural steel framing.
- E. Section 07 90 00 Joint Protection - for joint sealants and expansion control.
- F. Section 07 60 00 Flashing and Sheet Metal – for flashing of FRP fabrications.

#### 1.03 REFERENCES

- A. ASTM International (ASTM)
  - 1. D790 - Standard Test Methods of Flexural Properties of Unreinforced and Reinforced Plastics
  - 2. D638 - Standard Test Method For Tensile Properties of Plastics
  - 3. D256 - Standard Test Methods For Determining the Izod Pendulum Impact Resistance of Plastics.
  - 4. D570 - Standard Test Method For Water Absorption of Plastics
  - 5. D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
  - 6. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

#### 1.04 SUBMITTALS

- A. Product Data: Submit product data sheets for each specified product.
- B. Samples: Submit representative samples of the color and texture of FRP material(s) selected by the Architect or Designer.
- C. Shop Drawings: Submit drawings for approval showing plans, sections, details, joint treatment, reinforcing, support, fastening devices and the relation of the FRP parts to the surrounding construction.

#### 1.05 QUALITY ASSURANCE

- A. All architectural FRP parts to be provided by the same manufacturer using the same source of materials for the project.
- B. Manufacturer Qualifications: Manufacturer shall have successfully supplied FRP fabrications for other projects similar in scope and complexity for the work of this Contract.
- C. Installer Qualifications: Installer shall have successfully installed FRP fabrications for other projects similar in scope and complexity for the work of this Contract.

- D. Substrates and framing to accept FRP parts shall be installed straight and true within 1/8 in. in 8 linear ft. [3mm in 2500mm] and shall be free of obstructions and interference that prohibit the correct alignment and attachment of the FRP fabrications and parts.
- E. Where the work schedule permits, confirm dimensions and site conditions prior to manufacturing FRP parts specified in this section. Any deviations from the design conditions or dimensions to be provided to the manufacturer for inclusion in the shop drawings

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Handle and transport FRP parts to avoid damage. Place non-staining resilient spacers between parts and support parts during shipment.
- B. Parts shall be kept clean and dry and stored protected on firm, level and smooth surfaces to prevent distortion, warping, and other physical damage in accordance with the manufacturer's recommendations.
- C. Place stored panels so part identification labels are clearly visible.
- D. The installing contractor is responsible for damage to the FRP parts after delivery.

### **PART 2 – PRODUCTS**

#### 2.01 MANUFACTURERS

- A. Formglas Products Ltd. – Tel: 416-635-8030  
Contact your local representative – [www.formglas.com/representatives](http://www.formglas.com/representatives) or send requests for quotations directly to [estimating@formglas.com](mailto:estimating@formglas.com)

#### 2.02 GLASS FIBER REINFORCED PLASTIC (FRP) FABRICATIONS

- A. Fabrications: Molded FRP parts shall have a Class 1 (or A) fire rating with a Flame Spread Index :  $\leq 25$ ; Smoke Development Index:  $\leq 450$ , when tested in accordance to ASTM E84 Standard (See 1.03 References).
- B. Gelcoat: The FRP parts shall have an ISO/NPG ultra violet stabilized polyester gelcoat with a minimum thickness of 15-20 mil.
- C. Back up Laminate: Glass reinforcement shall consist of a glass fiber polyester composite with 25-30% glass content.
- D. Part Thickness: FRP parts to have a nominal shell thickness of 3/16" with increased thickness where core materials are encapsulated to provide added strength and straightness, as required.
- E. All reveals, setbacks or returns to have a 3° draft minimum.
- F. All outside corners to have a 1/8" minimum radius
- G. Identification: All FRP parts to have labels affixed to the back individually indentifying them with the same part numbers used on the shop drawings.

#### 2.03 FINISH

- A. The FRP parts Color and Finish are to match the approved sample(s) as detailed in the contract documents.

### **PART 3 – EXECUTION**

#### 3.01 EXAMINATION

- A. Site Conditions: Verify the conditions for compliance with the manufacturer's requirements including installation tolerances and other conditions affecting the

installation and performance of the FRP parts. Any unsatisfactory conditions to be corrected prior to installation.

- B. Field Dimensions: Field dimensions to be verified including those not shown on the drawings. Any discrepancies between design and field dimensions shall be brought to the attention of the Architect with resolutions to the discrepancies to be mutually agreed upon by all parties involved. Details of any required changes must be incorporated into the manufacturer's shop drawings prior to commencing the manufacture of the FRP parts
- C. Design Dimensions: Where field measurements can not be made without delaying the Work, the installing contractor is to confirm with the Architect to proceed with fabricating the FRP parts to the design dimensions with construction coordinated to ensure the actual site dimensions correspond with the design dimensions.

### 3.02 PREPARATION

- A. Substrate: Substrates to accept FRP parts, provided by others, shall be installed straight and true within 1/8 in. in 8 ft. (3mm in 2500mm), secure, and shall be free of obstructions and interference that prohibits correct attachment of FRP parts.
- B. Structural framing members and bearing surfaces, provided by others, shall be true and level, of the proper size, spacing and design for the intended use and shall be sufficient to properly support the installed FRP parts.
- C. Report discrepancies between design dimensions and field dimensions which could adversely affect the installation of the FRP parts. Do not proceed with the installation until discrepancies are corrected or installation requirements modified and approved.

### 3.03 INSTALLATION

- A. Install in accordance with the manufacturer's instructions, contract documents and shop drawings.
- B. The Installing contractor to provide all support brackets, connection hardware, adhesives, and other accessories required for the proper installation of the FRP fabrications in accordance to the manufacturer's requirements and applicable building codes.
- C. Position FRP parts carefully into place plumb, level and aligned with adjacent parts, shimmed where necessary.
- D. Anchors and fasteners to be type 304 stainless steel where exposed; hot dip galvanized steel where unexposed.
- E. Provide temporary supports or bracing as required to maintain position, stability and alignment of parts until permanently secured.
- F. Installing contractor to repair and patch holes or defects to match the original work.
- G. Provide joint spacing between parts as detailed in the approved drawings for expansion and the application of joint treatment materials.

### 3.04 JOINT PROTECTION:

- A. Caulk joints with a low modulus exterior elastomeric sealant recommended by the manufacturer. Color of caulk to be selected by the Architect. (If joint treatment follows under a separate section of this contract, this does not apply).

### 3.05 CLEANING AND PROTECTION

- A. Perform cleaning procedures, if necessary, according to FRP manufacturer's written instructions. Take precautions to prevent damage to FRP surfaces and staining of adjacent materials.

**END OF SECTION**

Note to Specifiers: Depending on the nature of the construction project and other related work to be carried out, Formglas® FRP (Glass Fiber Reinforced Plastic) may be specified in other MasterFormat sections. For example, Section 06 60 00 Plastic Fabrications or 06 80 00 Composite Fabrications.  
Delete this note