ARCHITECTURAL FIBERGLASS
SECTION 06610

PART I GENERAL

1.1 VERIFICATIONS OF CONDITIONS

a. Prior to proceeding with any work, carefully check and verify all pertinent dimensions on the project drawings and the Contractor shall verify on site dimension and assume full responsibility for fitting the components to the structure.

b. The components indicated on the drawings show dimensions established to accomplish the Architect's intended visual result and to conform to the building's configuration. The Contractor shall verify that the components that will be actually provided for the work of this Section will fit the building's structural elements and conform to the visual design criteria indicated on the drawings without materially altering profiles and alignments.

c. Any additional support or backing for the components shall be provided and installed by the Installation Contractor as part of the work of this section.

1.2 PERFORMANCE CRITERIA

a. Structural Properties

(1) The fiberglass reinforced polymer components shall be engineered, fabricated and erected to conform to the specifications and applicable requirements as specified by local codes to fit the building structure and to conform to the Architect's visual design criteria.

1.3 PATTERNS, MOCK-UPS AND MOLDS

a. Upon approval by the Architect of the shop drawings, inspection of the patterns, mock-ups, and/or molds shall be approved by the Architect on-site or at the facilities of the fiberglass manufacturer.

b. Patterns and mock-ups shall be hand carved and machined by skilled craftsmen who have a minimum of ten (10) years' experience in fabrication of Architectural Exterior and Interior Trim and Facade components and/or related design projects.

c. Molds shall be constructed of from no less than six layers of glass fibers with tooling gel-coat and/or rubber molds shall be fabricated by skilled craftsmen with a minimum of ten years experience in fabricating of architectural components for similar projects.

1.4 GUARANTEE

a. In addition to the guarantee referenced in the Agreement between the Owner and the Contractor (the Contract), the work of this Section shall be guaranteed in writing against defects of materials and workmanship and to meet the specified requirements of this Section for a period of not less than one (1) year from delivery to site. Additionally, all manufacturers guarantee for materials will be passed on to customer.

1.5 FABRICATOR QUALIFICATIONS

a. The Fiberglass Fabricator shall be one who is currently in the business of manufacturing and supplying architectural fiberglass components for the building construction industry and who can demonstrate this capability. The Fabricator shall have been manufacturing fiberglass architectural components in the United States for at least 10 years doing work with projects comparable to that specified and shown. Fabricator will submit list of projects and customers, if requested.

b. The Fiberglass Fabricator staff shall include more than one ACMA Composites Certified Technicians (CCTs) with current credentials. Fabricator will provide proof of such certifications with the submittal package

PART 2 - PRODUCTS

2.1 FIBERGLASS AND RESIN MATERIALS

a. Glass cloth, matt and "chop" shall be equal to the products of PPG-Owens Corning.

b. Polymer resins shall be either General Purpose Resins or, at specifiers discretion, Class A resins that meet, EDON Specification #67. Such resins shall be flame retardant, promoted thixotropic polyester resin designed for use in hand lay-up and sprayup processes. This resin is specifically formulated for use in applications that require an ASTM E-84, Class 1 flame spread rating, without the use of fillers or antimony trioxide, with an ASTM E-84 flame spread rating of less than 25 unfilled and smoke density under 450.

c. Gel-Coat shall be part of system specified at 2.1 (b) above.

2.2 FABRICATION

a. Fiberglass reinforced polymer components shall be manufactured using the specified resins, reinforced with the chopped glass fibers. All exposed surfaces shall be finished with colored gel-coat with UV inhibitor.

c. Final ratio of materials, other than metal, shall be approximately 27% fiber, 73% resin for body of components.

d. Gel-coated thickness shall be 0.015” to 0.025”.

e. Finished panels shall be true to line in the shapes indicated on the drawings, free of warps, twists, waves or distortion.

f. Joints in components shall be matched at the factory and numbered for field installation. Components shall be fabricated to minimize exposed fasteners.

g. Components shall have a finish approved by architect.

PART 3 - EXECUTION

3.1 HANDLING AND SHIPMENT

a. Protect the components during shipment by means of crates and/or padding so that they arrive at the project undamaged.

b. Erect the components, plumb and square, true to lines, levels and/or elevations shown on the drawings.

c. Position supports and anchorage devices and set fiberglass components in place prior to securing fasteners.

3.2 INSTALLATION

a. Select installer who can demonstrate their experience in working with FRP. Provide installer with FRP manufacturer's final approved shop drawings.

b. FRP component assembly hardware to be provided by supplied by contractor or installer.

c. Coordinate required blocking for attachment of components to substructure. Provide additional, wood preservative treated or metal stud framing as may be required to attached and reinforce components for a solid installation.

d. Erect components plumb, square and true to line and level and/or elevations shown on the drawings. Follow manufacturer's recommendations with regard to installation clearances, notches, and formation of panel-to-panel joints.

e. Position supports and anchorage devices and set fiberglass components in place prior to securing fasteners.

f. Install sealant and accessories as work progresses, so as to make the work weather tight.

g. Provide each component with joints such that adjacent parts mate to produce flush joints. Recess blocking or notch continuously behind each panel joint. Set panels to ensure a maximum joint thickness of 3/8".

h. Fill joints with a continuous bead of sealant, finished joints to a slightly concave profile ensuring complete filling and flush installation.

i. Carefully monitor ambient temperatures at time of component installation and observe all part-to-part clearances recommended by the fiberglass manufacturer.

j. Do not cut or abrade FRP gelcoat finish, which cannot be completely restored in the field. Installer to make small inconspicuous finish repairs using manufacturer's color matching gel fill finish (patch kit). If too large of a repair is needed, return to fiberglass manufacturer for alterations or new units.

k. Use only stainless steel connectors approved by the FRP manufacturer and which will develop the strength required by manufacturer's calculations. The installer shall supply these connectors.

l. Countersink all exposed fasteners. Patch all attachment holes with gel fill finish (patch kit) supplied by the fiberglass panel manufacturer for field application. Finish attachment points so that there is no detectable difference in the completed surface.

m. Clean installed component to remove all dirt, smudges, and construction dirt. Use only those cleaning products and procedures recommended by the fiberglass manufacturer.

n. For components requiring field painting after installation, use quality primer and paint as recommended by paint manufacturer.

PROPERTIES - FIBERGLASS REINFORCED POLYMER (FRP)

Engineering values based on averages of data as promulgated by the American Composites Manufacturing Associates ("ACMA") for chopped fiberglass assemblies in an open mold, spray-up method. See Appendix J, Table J3.1 of ACMA's 2016 *Guidelines and Recommended Practices for Fiber Reinforced Polymer (FRP) Architectural Products*

Characteristic	Average Value	Common Variability
Glass Content	27%	4% +/-
Tensile Strength	19,000	4,000 +/-
Flexural Strength	34,000	5,000 +/-
Compressive Strength	24,000	3,000 +/-
Flame Spread by ASTM 84 (FR Resin)	<25	NA
Flame Spread by ASTM 84 (GP Resin)	>25	NA
Smoke Generation by ASTM 84 (FR Resin)	<450	NA
Smoke Generation by ASTM 84 (GP Resin)	>450	NA
Coefficient of Expansion	7.2 x 10^6 in/in F.	TBD