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## CONCRETE DESIGNS INC. - SPECIFICATIONS

### SECTION 03481 - ARCHITECTURAL GLASS FIBER REINFORCED CONCRETE

#### PART 1 - GENERAL

##### SUMMARY

This Section refers to architectural glass fiber reinforced concrete (GFRC)

Architectural GFRC concrete includes the following:

GFRC as defined in the architectural plans. Potentially includes wall caps, columns, balustrade, quoins, pavers, finials, moldings or any other decorative element designed to be manufactured out of GFRC.

These are non-structural, self supporting units.

##### SUBMITTALS

Product data and instructions for manufactured materials and products.

Shop drawings prepared by CDI showing complete information concerning the GFRC units. Indicate member dimensions and side view. Unless otherwise noted, anchors will be embedded in a standard configuration.

Samples - Submit samples of color options and texture options for selection process.

##### QUALITY ASSURANCE

Fabricator Qualifications: CDI has over 50 years of successful experience in fabrication of architectural precast concrete units and over 10 years experience in manufacturing GFRC. Fabricator has sufficient production capacity to produce, transport and deliver required units without causing delay in the project.

Design modifications will be made only as necessary to meet field conditions and to ensure proper fitting of the work and only as acceptable to the Architect or Project Manager. Maintain general design concept shown without increasing or decreasing sizes of members or altering profiles and alignment shown without architects approval. Modifications may need to be considered in view of budget constraints.

##### DELIVERY, STORAGE AND HANDLING

Deliver GFRC units to project site in such quantities and at such times to assure continuity of installation. Schedules and priorities will be based on the information provided by the customer. Products to be packaged to protect the finish during transport. GFRC may be a long lead time item and should be ordered accordingly.

## **PART 2 - PRODUCTS**

### **REINFORCING MATERIALS**

Epoxy coated rebar used in some product designs to insure safe handling.

Corrugated Wall Ties - Included in moldings as the mechanical fastener. 22 gauge mill galvanized steel - 7/8" x 7".

Threaded Inserts - Plastic inserts are included in very large castings such as large moldings, columns and stackable column components. These are for mechanical ties and not for lifting purposes.

Adhesives - Latex - modified mortar or equivalent used on a stable substrate in conjunction with the mechanical fastener should be used. White cement can be used to adjust the greenish color created by using the latex mortar.

Premium grade construction adhesives which come in tubes should be used for bonding columns and on flat surfaces where latex mortar cannot be used.

### **CONCRETE MATERIALS**

Portland Cement: Type 1 Portland Cement Gray or Lehigh White

Use only one brand, type and source of supply of cement throughout the project, unless otherwise acceptable to Architect.

Sand: Silica Sand.

Glass Fibers: Alkali resistant fiber specifically produced for use in GFRC.

Pigments: Nonfading, resistant to lime and other alkalis.

Water: Drinkable, free from foreign materials in amounts harmful to concrete and embedded steel.

Polymer Admixture: Utilize standard mix designs incorporating admixtures which facilitate the workability, curing and strength of the mix.

## **FABRICATION**

**General:** Fabricate GFRC units complying with manufacturing and testing procedures, quality control recommendations, and following dimensional tolerances, unless otherwise indicated.

**Molds:** Accurately construct molds mortar-tight and of sufficient strength to withstand pressures due to material placing operations and temperature changes. Maintain mold work to provide completed GFRC units of shapes, lines and dimensions indicated, within specified fabrication tolerances.

**Dimensional Tolerances of Finished Units:** GFRC being tapered by design, is measured for length, width and thickness at the surface from which the mold is loaded maintaining plus or minus 1/16 of an inch tolerance. Overall height and width measured at face adjacent to mold at time of casting:

**Surface Finish:** Fabricate precast units and provide exposed surface finished as follows:

Standard GFRC – Smooth surface finish free of excessive air voids.

Etched GFRC - Light etch applied to the cast finish.

Antique – Highly irregular, rusticated finish.

Color: Select from CDI color chart to minimize variations in color.

**PART 3 - RECOMMENDED EXECUTION OF THE INSTALLATION** - The successful installation requires experienced, knowledgeable installers in order to achieve a quality installation. Local building codes should be followed. Considerations for installation include:

**Install GFRC** members plumb, level and in alignment. Provide temporary supports and bracing as required to maintain position, stability and alignment as members are being permanently connected.

Maintain horizontal and vertical **joint alignment** and uniform joint width as erection progresses.

**Accessories:** Install clips, hangers and other accessories required for erection of GFRC units to supporting members and backup materials.

**Anchor units** in final position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges and spacers as soon as possible after anchoring and grouting are completed.

**Cleaning:** Clean exposed facings to remove dirt and stains on units after erection and completion of joint treatments. Protect other work from damage due to cleaning operations. Do not use cleaning materials or processes that could change the character of exposed concrete finishes.