Glass Fiber Reinforced Concrete (GFRC)

Product Data & Material Specifications

Material Characteristics

Shell Thickness	1/2" Shell Thickness (+1/8", -1/16") – Thicker at flanges
Glass Fiber Content	PCI Guidelines: 5-6% (by Weight)
Weight	+/- 6 (lbs/ft2) (varies with embedment, piece shape)
Flexural Strength	Modulus of Rupture 2500 - 4000 (PSI) Limit of Proportionality 900 – 1500 (PSI) Flexural Modulus of Elasticity 1.5 – 2.9 x 106 (PSI)
Compressive Strength	7000 – 12000 (PSI)
Tensil Strength	Ultimate Tensile 1000 – 1600 (PSI) Yield – Bend-Over Point 700 – 1000 (PSI) Strain to Failure 0.6 – 1.2 %
Heat	Thermal Conductivity 3.5 – 7.2 (BTU/in/hr/ft2/F) Thermal Expansion Coefficient 6 - 9 (x 106 in/in/F) 0
Fire	Incombustible Material, ASTM E84-80 Flame=5, Smoke=5
Density	(Dry) 120 – 140 (PCF)
Tolerances	Fabrication: Dimensional – all directions +/- 1/8" Warpage or Bowing +/- 1/16" /foot Square / Skew /Diagonal +/- 1/8" in 10' Out of Round +/- 1/16" / foot of diameter
Face Mix Ratio	**Portland Cement**: 94 lbs. ASTM C Type **Sand:** 75 lbs. **Pigments**: Iron Oxide **Water:** 23 lbs Potable (45 - 60°F) **Polymer**: 13 lbs (Uni-Spray) 3.4% **Plasticizer**: 6-12 oz. (WR Grace Adva)
Back-up Mix Ratio	**Portland Cement**: 94 lbs. ASTM C Type **Sand:** 75 lbs. (550 Silica) **Pigments**: Iron Oxide **Water**: 23 – 25 lbs Potable (45 - 60°F) **Polymer**: 10 lbs (Forton) **AR Glass**: 7.5 – 8.5 lbs (Avg 3.5% to 4%) **Plasticizer**: 6-12 oz. (WR Grace Adva)

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13. GFRC Materials

- Portland Cement: ASTM C150/C150M; Type I, II or III
  —For surfaces exposed to view in finished structure, use white of same type, brand and source throughout GFRC
- Metakaolin: ASTM C618, Class N
- Glass Fibers: Alkali resistant, with a minimum zirconia content of 1 .% 16 to 2 inches long, specifically produced for use in GFRC, and complying with ASTM C1666/C1666M
- Sand: Washed and dried silica, complying with composition requirements in ASTM C144; passing a 20# sieve with a maximum of %2 passing a 100# sieve.
- Facing Aggregate: ASTM C33/C33M, except for gradation, and PCI MNL 4/1 ,130inch maximum size
  —Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining
  —Fine Aggregate: Natural or manufactured sand with a maximum of %5 passing a 100# sieve and a maximum of %3 passing a 200# sieve.
- Coloring Admixture: ASTM C979/C979M, synthetic mineral-oxide pigments or colored water-reducing admixtures, temperature stable, nonfading, and alkali resistant.
- Water: Potable, free from deleterious material that may affect color stability, setting or strength of GFRC and complying with chemical limits in PCI MNL 130
- Polymer-Curing Admixture: Acrylic thermoplastic copolymer dispersion complying with PCI MNL 130.
- Air-Entraining Admixture: ASTM C260/C260M, containing not more than %0.1 chloride ions.

General Notes

1. GFRC – Glass Fiber Reinforced Cement. 3/8” mesh fabric AR scrim layer, behind cement face coat, backed up with multi-directional high zirconia alkali-resistant chopped strand fiberglass cast into a matrix of fine sand, potable water, polymer and Type-I Portland Cement.
2. GFRC is dense, insoluble and unaffected by weather, temperature change or pollutants.

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3. GFRC is typically supplied as smooth unfinished white or gray, ready for field application of decorative coatings such as paint, tile or an EIFS type textured surface. GFRC can be supplied with factory-applied solid color concrete stain as an option.
4. Galvanized (perforated 20 ga.) metal at attachment locations for fastener support. Additional ribbing / metal rebar / hat channel may also be laminated into some parts for rigidity/flatness – if noted on drawings.
5. Decoro Company only furnishes GFRC products shown. Installation by others. All framing, screws, adhesives, shims, etc are furnished by the installing contractor.
6. Draft will be used where deemed necessary for mold release. All corners will have eased edges.
7. All surface imperfections will not be detected before shipping. Patching may be required on GFRC.
8. Materials shall be stored in an upright position. Materials stored improperly will change shape.
9. Any stone product, man-made or natural, is subject to variations of color and pattern. GFRC will have variations of color and pattern, even in the event of documents clearly referring to a specific sample.
10. Decoro Company must be notified before installer makes field modifications to GFRC. The cutting or processing in any manner of any product delivered shall constitute the complete acceptance of the same and an absolute waiver of any claim for defect.