

PRODUCT SHEET



Common Names:

Glass Fiber Reinforced Concrete | GFRC
Glasfiber Reinforced Concrete | GRC

MasterFormat 03 49 00

Manufacturer:

Wilson Composites
880 South Pleasantburg Drive, STE 3G
Greenville, SC 29607
864.646.3000
864.654.1800 (F)
WilsonComposites.com
Sales@WilsonComposites.com

GFRC (Glass Fiber Reinforced Concrete)

Wilson Composites' GFRC is a Class A (or 1) flame-spread rated composite material made from Portland cement, sand, aggregate, and glass fiber, offering good flexural strength. GFRC parts are factory-molded using a hand lay-up process, allowing for a variety of shapes, patterns, textures, and colors. They can also be provided unfinished for on-site painting. After de-molding, the exposed face is finely sandblasted for a uniform finish, unless specified as paint-ready. GFRC parts have a nominal shell thickness of 5/8" (16 mm) with perimeter edges thickened to at least 1" (25 mm) for enhanced strength. Unlike larger GFRC panels, GFRC doesn't include a factory-attached steel frame. It's ideal for applications where smaller panel sizes are suitable, offering cost advantages over traditional GFRC or natural stone.

Detailed Description

Glass Fiber Reinforced Concrete (GFRC) encompasses a range of cementitious products made with Portland cement, silica sand, aggregate, alkali-resistant glass fiber, and admixtures in varying proportions to achieve specific performance and aesthetic goals. In architecture, GFRC is often associated with large facade panels needing a structural steel frame for support and installation with cranes.

GFRC uses white Portland cement and color pigments for consistent color throughout, not just on the surface. Due to the nature of concrete and aggregates, and the finishing process, minor color and texture variations are expected.

wilson
COMPOSITES, LLC

Typical GFRC applications include low-rise exterior veneer panels, cornices, pediments, window/door frames, columns, friezes, and interior elements needing a non-combustible, impact-resistant material. Most parts are attached with concealed fasteners and can have factory-molded corners to reduce field cutting. They are custom-made to project specifications.

Most items are custom-made to meet project design requirements and specifications. Wilson uses 7-, 5-, and 3-axis CNC technology to machine precision patterns from which molds are produced to make the required parts. Detailed shop drawings and samples are provided for approval before manufacturing.

Technical Data

Refer to these standards:

ASTM International (ASTM)

- E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- C947 Standard Test Method for Flexural Properties of Thin-Section Glass Fiber Reinforced Concrete
- C944 Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces
- C140 Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units

Physical and Mechanical Properties

Wilson Composites GFRC is a single-skin GFRC panel made with white Portland cement, silica sand, polymer, and alkali-resistant glass fiber (minimum 16% Zirconia content). It has a 1/8" (3 mm) face mix without glass fiber and a 1/2" backing mix with interspersed glass fiber.

Matrix:	Portland cement, sand, and polymer
Finish:	Six standard colors, custom color matching available
Surface:	Lightly sandblasted or smooth (if paint-ready)
Density:	134 lbs/ft ³ (2145 kg/m ³)
Weight:	7-9 lbs/ft ² (34-44 kg/m ²)
Shell Thickness:	5/8" (16 mm) nominal
Edge Thickness:	5/8" (16 mm) minimum
Glass Fiber:	4% minimum
Reveals/Setbacks:	3° draft minimum
Max. Molding Length:	48" (1.2 m)
Max. Veneer Panel Size:	48" x 36" (1200 x 900 mm)
Max. Molded Part Size:	15 ft ² (1.4 m ²)

Typical Weights

Parts with deep surface relief may weigh more. Submit drawings for accurate estimates.

Subject to manufacturing tolerances. Weight and measurement conversions may be rounded.

Flame Spread:	0
Smoke Development:	0
Flexural Strength:	1,860 psi (12.8 MPa)
Tensile Strength:	1,260 psi (8.7 MPa)
Compressive Strength:	4,000 psi (2.76 MPa)
Coefficient of Linear Thermal Expansion:	7.6 x 10 ⁻⁶ in/in/°F (13.6 x 10 ⁻⁶ mm/mm/°C)
Hardness (Abrasion):	0.37%
Thermal Conductivity:	4.3 Btu in/h ft ² °F (0.62 W/m K)

Manufacturing Tolerances

Dimensional (all directions):	±3/16" (±5 mm)
Thickness:	±1/8" (3 mm)
Variation from Square:	±1/8" (3 mm)
Bowing (Out of Plane):	±1/8" per ft (3 mm/300mm)

Preparatory Work

Site Conditions: Review site conditions for compliance with installation tolerances and any factors affecting installation and performance. Correct any issues before installation. Take field measurements to verify dimensions, including those not on drawings, and provide details of any changes for inclusion in shop drawings before manufacturing begins. Wilson Composites will produce parts based solely on approved shop drawings and is not responsible for deviations between site conditions and drawings.

Substrates: For flat veneer cladding, substrates (e.g., exterior-grade plywood) must have a suitable surface and weather barrier, installed straight and true within 1/8" in 8 linear ft (3 mm in 2,500 mm). This isn't required for columns, cornices, trims, etc. The substrate should be free of obstructions hindering GFRC part placement and attachment. Structural framing and substrate must be properly sized and designed to support installed GFRC parts.

Installer Safety: Wear appropriate PPE, including eye protection, gloves, and dust masks. Adhere to local regulations and job site rules. Review SDS information before handling and installing GFRC, available at WilsonComposites.com, included with shipments, or by calling Wilson Composites.

Installation

General: Install GFRC parts as per approved shop drawings, instructions, and contract documents. The installer provides and installs all brackets and shims needed for alignment with adjacent parts and materials. Part thicknesses may vary, so allow for shim spaces. Attach GFRC to framing or substrate using corrosion-resistant screws, bolts, or fasteners as shown in shop drawings. Additional bracing or fastening points may be needed.

Hole Cutting: When cutting is necessary, use one of these methods, always wearing goggles and a dust mask:

- Miter or table saw with a diamond blade for masonry (dry cut only)
- Mini-grinder with 4" (100 mm) diamond blade for small cuts or cut-outs

Attachments: Install GFRC with concealed fasteners. Face-fastening will be visible. Typically, factory-attached metal mounting plates extend into joint spaces for concealed screws, later hidden with caulk. In some cases, flashing can conceal top-edge fasteners. Use joint spacers for uniform spacing. When directed, use a recommended adhesive to prevent bleed-through.

Joint Treatments:

- Joints must be caulked.
- Wilson Composites doesn't supply caulk but can recommend brands and colors.
- Use spacers (min. 3/8" / 9.5 mm) and masking tape on both sides of the joint.
- Avoid smearing caulk and remove excess immediately.
- Caulk between GFRC and different materials.
- Don't aim for a monolithic look; joints are inevitable.

Hole Filling and Patching:

- Patch screw holes and chips with matching GFRC patching compound, avoiding smears. Remove excess immediately with a scraper and damp cloth. Follow provided instructions.
- Use patching compound sparingly.
- Avoid smearing.
- Remove excess promptly.

Cleaning and Maintenance:

- Periodic cleaning prevents dirt and pollutant buildup. Clean with water and mild dish detergent, possibly light scrubbing with a soft brush. Avoid pressure washers to prevent damage.
- Take precautions to avoid staining adjacent materials during cleaning.