PRODUCT SHEET

Common Names:
Fiberglass Reinforced Polymer | FRP
Glass Fiber Reinforced Polymer | GFRP
Fiber-Reinforced Polymer
Glassfiber Reinforced Plastic

MasterFormat 06 82 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

wilson
COMPOSITES, LLC

FRP (Fiberglass Reinforced Polyester)

Wilson Composites' FRP is a versatile, high-strength, and lightweight fiber-reinforced polymer composite, ideal for architectural applications. It boasts a Class A fire rating and can be molded into diverse shapes, textures, and patterns, offering architects exceptional design freedom. Our FRP is available pre-finished or paint-ready, catering to various project needs.

Detailed Description

Wilson Composites' FRP is a thermoset polymer composite reinforced with glass fibers. Its layered construction, comprising chopped strand glass mat and resin, ensures consistent material strength and durability. Strategic reinforcement enhances strength and facilitates secure attachment. Our FRP exhibits superior weathering resistance, flexural strength, and tensile properties, making it a cost-effective choice for new constructions and renovations, especially for exterior use. Its lightweight nature simplifies transportation, handling, and installation.

The standard FRP surface features a UV-stabilized gel coat, typically white for field finishing. The underlying laminate consists of glass fiber and resin layers. The composite material achieves a Class A flame spread rating. Molded FRP shapes gain strength and stiffness from their geometry, with features like recesses and curves contributing to structural integrity. The nominal shell thickness is 3/16," with thicker sections in flat areas for enhanced rigidity.

FRP empowers architects and designers with unparalleled flexibility due to its lightweight nature. It can be molded into virtually any shape and size, often eliminating the need for costly support structures or complex installations compared to materials like precast concrete.

FRP parts are typically secured to structural framing using concealed fasteners. Joint placement is strategically minimized, considering part size, design aesthetics, and installation ease. Factory-molded corners are standard, reducing the need for on-site mitering.

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.

Common architectural applications include cornices, columns, pediments, moldings, storefront entries, friezes, and signage. FRP can convincingly replicate materials like slate, cast iron, and wood. Primarily used on exterior walls and non-combustible substrates, interior applications are subject to local building codes.

Technical Data

ASTM International (ASTM)

E84 Standard Test Method for Surface Burning Characteristics of Building Materials

D790 Standard Test Methods for Felxural Properties of Unreinforced and Reinforced Plastics

D638 Standard Test Method for Tensile Properties of Plastics

D256 Standard Test Method for Determining the Izod Pendulum Impact Resistance of Plastics

D2583 Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Bardol impressor

D648 Standard Test Method of Deflection Temperature of Plastics Under Felxural Load in the Edgewise Position

D696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics

D570 Standard Test Method for Water Absorption of Plastics

Flame Spread:	≤25 (Class N)
Smoke Development:	≤s450 (Class A)
Flexural Strength:	32,100 psi ⇄ 221 MPa
Tensile Strength:	15,950 psi ⇄ 110 MPa
Modulus of Elasticity:	1,080,000 psi (7.45 Gpa)
Compressive Strength:	33,100 psi ⇄ 228 MPa
Impact Resistance:	12 ft-lb/in ⇄ 643 Jim
Barcol Hardness:	44
Heat Deflection:	> 513°F ⇄ 285°C
Coefficient of Linear Thermal Expansion:	2.73 x 10^{-6} in/in/°F (1.5 x 10^{-6} mm/mm/°C)
Water Absorption:	0.3%

Physical and Mechanical Properties

Matrix:	ISO/NPG Gelcoat with Fire Retardant Polyester Resin or equivalent
Finish:	White, ready for field paint. Custom color matching available.
Surface:	Smooth standard, molded textures available.
Density:	~110 lb/ft³
Weight:	1.75-2.25 lb/ft²
Shell Thickness:	3/16″ nominal
Embedments:	Core mat or other reinforcement as required
Glass Fiber Content:	25-30% typical
Reveals/Setbacks:	3° draft minimum
Outside Corners:	1/16″- 1/8″radius
Max. Molding Length:	16 ft
Max. Molded Part Size:	70 ft²

Manufacturing Tolerances

Dimensional:	±1/8,″ 0-10 ft
Thickness:	±1/8″
Variation from Square:	±1/8,″ 0-10 ft
Bowing (Out of Plane):	±1/16″/ft

Preparatory Work

Site Conditions: Verify site conditions meet installation tolerances and other requirements. Take field measurements to confirm dimensions and report any discrepancies for shop drawing updates. Wilson Composites manufactures parts based solely on approved shop drawings. The installer is responsible for ordering correct quantities, including waste allowance if needed.

Substrates: Ensure framing and substrates are prepared with suitable materials and weather barriers, installed straight and true within 1/8″ in 8 linear feet. The substrate should be free of obstructions. Structural framing must be adequately sized and designed to support installed FRP parts and comply with building codes.

Installer Safety: Wear appropriate personal protective equipment (PPE), including eye protection, gloves, and dust masks. Adhere to local regulations and job site rules. Review Safety Data Sheets (SDS) before handling or installing FRP materials.

Installation

General: Install FRP parts according to approved shop drawings, instructions, and contract documents. The installer provides

all necessary brackets, shims, hardware, and adhesives. Shim spaces may be needed due to thickness variations. Attach parts using corrosion-resistant fasteners. Additional bracing or fastening points may be required. Avoid over-torquing screws.

Cutting: Use appropriate cutting methods:

- Reciprocating saw with medium-grit composite blade
- Mini grinder with 4″ medium-grit composite or diamond blade
- Chop saw with diamond blade (for smaller moldings)
- 1 1/2″ batten strips (supplied by Wilson Composites for field-cut parts)

Attachment: Use concealed fastening methods whenever possible. Parts should have pre-drilled clearance holes and neoprene shims for expansion and contraction. Apply bond breaker tape before caulking joints. Stainless steel fasteners are recommended. Avoid over-torquing.

Joint Treatments:

- Caulk all joints.
- Use a paintable, one-compound elastomeric low-modulus urethane sealant.
- Maintain uniform gaps with spacers and bond breaker tape.
- Apply masking tape and remove excess caulk promptly.
- Joints cannot be completely hidden.

Hole Filling and Patching:

- Hole Repair: Sand, clean, and apply gelcoat putty. Overfill slightly. Allow curing before sanding.
- Screw Holes (Paint-Ready): Fill with Bondo, sand, and paint.
- Screw Holes (Pre-Finished): Fill with color-matching gelcoat putty, sand, and touch up.

Cleaning and Maintenance

Clean periodically to prevent dirt and pollutant buildup. Use water and mild detergent. Light scrubbing with a soft brush may be needed. Avoid pressure washers to prevent surface damage.