



THE SPECIFIER'S COMPARISON GUIDE

FRP, GFRC & GFRG: *Choosing the right composite for each element.*

A side-by-side reference for architects and spec writers — weight, fire behavior, strength, finish, and where each material earns its place on the drawing.

FRP

FIBER
REINFORCED
POLYMER

GFRC

GLASS FIBER
REINFORCED
CONCRETE

GFRG

GLASS FIBER
REINFORCED
GYPSUM

[START HERE](#)

Five questions that decide the material.

Most material choices default to habit — stone and precast because that's how classical elements have always been built. But the right composite is a decision, not a default. Run the element through these five questions before the section is written.

1 Interior or exterior?

Exterior facade, trim, or panels → **GFRC or FRP**. Interior ornamental work → **GFRG or FRP**.

2 Is weight or structural load a constraint?

If the framing, roofline, or an existing structure can't easily carry the load → **FRP** — it holds the same profile at a fraction of the mass.

3 Does the element need mass and solidity up close?

Columns at grade and elements viewed at arm's length where weight is part of the design language → **GFRC**.

4 Is integral color or deep texture required?

Sandblast, integral pigment, and deep relief read best in **GFRC**. FRP and GFRG arrive paint-ready or factory-finished.

5 Are you replacing site-applied interior plaster?

Coffers, capitals, domes, and arch surrounds → **GFRG**. Factory-finished consistency without the variability of field plasterwork.

“The question is never how do we make this in our material — it's which material is actually right for each component.”

THE THREE WILSON COMPOSITES, SIDE BY SIDE

FRP vs. GFRC vs. GFRG.

All three are fabricated to the profile you approve in shop drawings. They differ in weight, strength, fire behavior, and where they belong on the building.

ATTRIBUTE	FRP	GFRC	GFRG
Weight (lb/ft²)	1.75-2.25	7-9	1.5-2
Nominal thickness	3/16"	5/8"	5/8"
Flexural strength	32,100 psi	Per project design (ASTM C947)	4,700 psi (ultimate)
Fire behavior	Class A flame spread	Non-combustible • 0/0 FS/SD	Non-combustible • 0/0 FS/SD
Typical use	Exterior & interior architectural shapes	Exterior veneers, panels, trim	Interior decorative elements
Install complexity	Low-Medium	Medium (engineered anchors)	Low
Finish	Gelcoat or paint-ready	Integral color, sandblast, textures	Paint-ready • factory finishes

Figures from Wilson Composites product data. FRP flexural per ASTM test; GFRC strength is engineered per project (ASTM C947). Confirm project-specific values with our spec team.

FRP

FIBER REINFORCED POLYMER — THE WEIGHT PROBLEM SOLVER

SPECIFY IT FOR

- Roofline cornices & long-run trim
- Dormer surrounds & entryway assemblies
- Historic restoration at original profiles
- Any element where load is a concern

REACH FOR SOMETHING ELSE WHEN

- Columns at grade need mass
- Large facade panels with deep texture
- Mass itself is part of the design language

AGAINST THE TRADITIONAL ALTERNATIVES

Where composites beat stone, precast & plaster.

EXTERIOR · GFRC vs. precast concrete vs. natural stone

ATTRIBUTE	GFRC	PRECAST CONCRETE	NATURAL STONE
Weight (lb/ft²)	7–9	80–120	150+
Structural impact	Minimal	Requires added structure	Major structural impact
Anchorage	Concealed engineered hardware	Heavy steel embeds	Pins / clips
Curves & complexity	Excellent	Limited	Very limited
Lead time / install risk	Low	High	Very high
Maintenance	Low	Medium	Medium–High

INTERIOR · GFRG vs. traditional plaster vs. gypsum board

ATTRIBUTE	GFRG	TRADITIONAL PLASTER	GYPSUM BOARD
Weight (lb/ft²)	1.5–2	6–8	2.2–2.8
Structural impact	Minimal (lightweight)	Requires lath + substrate	Requires framing
Detail complexity	Excellent — domes, coffers, curves	Moderate (field-built)	Low (flat only)
Finish	Paint-ready, factory-smooth	Requires finish work	Requires taping + mudding
Fire rating	0 Flame / 0 Smoke	Non-combustible	Rated only in rated assemblies
Ideal applications	Domes, coffers, capitals, curves	Restoration work	Standard walls / ceilings

A GFRC panel weighs 7–9 lb/ft². The natural stone it replaces weighs 150+. That difference doesn’t show up in the cornice budget — it shows up in the structural one.

THE RECOMMENDATION, PROVEN

Two projects where the material call mattered.

Because Wilson fabricates all three materials, the recommendation isn't limited to what we can supply — it's whatever is right for the element. Two examples of that in practice.

HISTORIC RESTORATION • FRP

Marshall County Courthouse

An EF3 tornado destroyed the 1886 stone cornices and dormers. Stone replacement was ruled out — too heavy for the structure, too complex to match. FRP was fabricated using the original debris as molds. From street level, the courthouse looks as it did in 1886; the weight is a fraction of the original.

Marshalltown, IA • OPN Architects • Breiholz Construction • 2022

K-12 EDUCATION • FRP + GFRC

Guntersville High School

The spec called for an all-GFRC cornice and columns. We kept the columns in GFRC — where mass reads correctly at grade — and switched the long cornice run to lighter FRP. Identical appearance, reduced structural load, lower installed cost. The architect has engaged us earlier on every project since.

Guntersville, AL • McKee Associates • 2023

“The best value-engineering recommendation is the one that delivers the design exactly as drawn — for less.”

EVERYTHING'S READY TO SPECIFY

The section is already written. Take the toolkit.

No forms, no gates. Every Wilson material ships with a complete Spec Writer Toolkit — drop the language into your section and the detail into your model.

Spec Writer Toolkit — FRP • GFRC • GFRG

CSI 3-part guide spec, product data sheet, installation details, add-to-spec language, comparison matrix, and the cornice detail in Revit (.rvt), DWG, and PDF.

Request finish samples

Hold the actual finish before you specify. We'll ship a sample kit to your office.

Have a live project? Get a quote.

Send us the scope and we'll tell you which material fits each element — before the spec is locked.

Transforming Architectural Vision, into Buildable Reality.

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