# GFRC / GRC General Technical Data Sheet - Custom Architectural Elements

**PRELIMINARY U.S. TECHNICAL DATA SHEET | Aug 28, 2026**

## 1. Material Overview

Glass Fiber Reinforced Concrete (GFRC / GRC) is an alkali-resistant (AR) glass-fiber-reinforced cementitious composite used for custom, non-load-bearing architectural elements. Structura's principal manufacturing route for these elements is spray-up production, particularly for molded, curved, returned, deeply profiled, L- and U-shaped, and other geometry-intensive components. Typical panel thickness, local reinforcement, backing/frame configuration, embedded inserts, connection design, and performance criteria are established on a project-specific basis.

*Current evidence status: Report No. 202501DW219(E), issued 11 April 2025, provides supplemental Chinese-standard material/property data under JC/T 1057-2021 and JC/T 940-2022, including flexural, impact, density, water-absorption, 100-cycle freeze-thaw, shrinkage, and out-of-plane compressive results. The reported results are based on the cited Chinese test methods and are provided as supplemental technical reference data. For U.S. projects, the applicable qualification and testing will be established on a project-specific basis according to the final element geometry, thickness, reinforcement, attachment system, design loads, exposure conditions, project specifications, and governing code requirements.*

## 2. Product Information, Current Evidence and U.S. Qualification Status

| Item | Current Reference Information / U.S. Status |
|---|---|
| **Material Name** | Glass Fiber Reinforced Concrete (GFRC / GRC). |
| **Primary Applications** | Custom architectural façade cladding and feature elements; molded and curved components; returns; L- and U-shaped elements; column covers; cornices; window surrounds; soffits; domes; landscape components; and other custom architectural elements. Intended as non-load-bearing architectural components unless specifically engineered otherwise. |
| **Manufacturing Process** | Predominantly spray-up production for custom molded and geometry-intensive elements. Fiber delivery and dosage are controlled through spray-equipment settings, spray distance/height, operator/process controls, and production procedures. Local steel reinforcement, backing frames, inserts, ribs, or other reinforcement may be incorporated where required by geometry, handling, connection, or project engineering. |
| **Curing** | Natural curing is typically approximately 28 days. Controlled steam curing may be used, particularly during winter production. Final curing requirements may be adjusted to the project, material configuration, production conditions, and required acceptance criteria. |

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| **Typical Architectural Thickness** | Typical GFRC shell/panel thickness: approximately 0.79-1.18 in. (20-30 mm). Final thickness and any backing/framing should be established by project-specific engineering, geometry, handling, transport, connection, and installation requirements. |
| **Density / Unit Weight** | Supplemental Chinese-standard result: approximately 144 pcf (2.3 g/cm³, dry condition). JC/T 1057-2021 referenced requirement: ≥125 pcf (≥2.0 g/cm³). Manufacturer reference range: approximately 125-144 pcf (2.0-2.3 g/cm³). Report No. 202501DW219(E). Any U.S. qualification or acceptance testing will be established as required for the specific project. |
| **Reference Panel Sizes / Custom Fabrication** | Common reference sizes include 47.2 x 94.5 in. (1,200 x 2,400 mm), 48.0 x 118.1 in. (1,220 x 3,000 mm), and 59.1 x 141.7 in. (1,500 x 3,600 mm). Custom sizes and geometries are available subject to project-specific engineering, handling, transport, and installation requirements. |
| **Surface Finishes / Color Options** | Available finishes may include smooth/as-cast, matte, sandblasted, acid-etched, cast-stone textures, timber-grain textures, brick-textured finishes, custom mold textures, integral pigmentation, and applied coating systems. Final color, texture, and sheen are subject to approval by physical sample and/or project mock-up. |
| **Use Environment / Intended Use** | Exterior and interior architectural applications. These GFRC elements are intended as non-load-bearing architectural components; each element, backing/frame, insert, and connection must still be engineered for the applicable project dead, wind, seismic, handling, and other design loads. |
| **AR-Glass Fiber Reinforcement** | Primary spray reinforcement uses alkali-resistant (AR) glass-fiber roving. Short water-dispersible chopped AR fiber may be used in the face layer for selected surface configurations where subsequent surface processing will not expose the fiber. Supplier technical data and certification should be maintained and made available upon request. Exact fiber specification, zirconia content, form, dosage, and placement remain controlled production information. |
| **Production QC / Companion Testing** | Production QC includes incoming-material checks; batching and mixing control; mold preparation; spray/fiber-dosage control; shell thickness, reinforcement and insert checks; curing; dimensional/appearance inspection; same-batch or project-equivalent companion specimens where required; acceptance; batch identification; and production records. |

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| **Test Specimens vs. Production GFRC** | Report No. 202501DW219(E) uses material/property specimens, including approximately 0.39 in. (10 mm)-thick specimens for several panel-property tests, while typical production shells are approximately 0.79-1.18 in. (20-30 mm). The formulation, fiber system, production process and curing are intended to be substantially representative, but specimen results do not establish universal full-element, connection, or design values. |
| **Flexural Strength at Proportional Limit (LOP)** | Supplemental Chinese-standard result: average approximately 1.46 ksi (10.1 MPa); minimum single specimen approximately 1.23 ksi (8.5 MPa). JC/T 1057-2021 referenced requirements: average ≥1.02 ksi (≥7.0 MPa) and minimum single specimen ≥0.87 ksi (≥6.0 MPa). Report No. 202501DW219(E). |
| **Ultimate Flexural Strength** | Supplemental Chinese-standard result: average approximately 2.71 ksi (18.7 MPa); minimum single specimen approximately 2.23 ksi (15.4 MPa). JC/T 1057-2021 referenced requirements: average ≥2.61 ksi (≥18.0 MPa) and minimum single specimen ≥2.18 ksi (≥15.0 MPa). Report No. 202501DW219(E). |
| **Compressive Strength** | Supplemental Chinese-standard out-of-plane result: approximately 8.57 ksi (59.1 MPa). JC/T 940-2022 referenced requirement: ≥5.80 ksi (≥40.0 MPa). Report No. 202501DW219(E). This is not a universal GFRC panel or design capacity. |
| **Impact Resistance** | Supplemental Chinese-standard result: approximately 863 ft·lbf/ft² (12.6 kJ/m²). JC/T 1057-2021 referenced requirement: ≥822 ft·lbf/ft² (≥12.0 kJ/m²). Report No. 202501DW219(E). Project-specific U.S. impact requirements, where applicable, must be separately established. |
| **Water Absorption** | Supplemental Chinese-standard result: 0.9%. JC/T 1057-2021 referenced requirement: ≤8.0%. Report No. 202501DW219(E). |
| **Weather / Freeze-Thaw Resistance** | Verified supplemental Chinese-standard result in Report No. 202501DW219(E): after 100 freeze-thaw cycles, no delamination, spalling, or other reported damage; conformity was confirmed under JC/T 1057-2021. Any U.S. freeze-thaw qualification will be established as required for the specific project. |
| **Shrinkage** | Supplemental Chinese-standard result: 0.02%. JC/T 1057-2021 referenced requirement: ≤0.10%. Report No. 202501DW219(E). This value is not a universal joint-movement or connection-design value; project/U.S. test conditions must be defined where used for design. |

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| **Embedded Connection - Independent SGS Shear Test** | Independent SGS ultimate shear test evidence is available for one specific tested production-panel connection configuration. Five approximately 15.75 x 15.75 in. (400 x 400 mm) specimens cut from finished production GFRC panels, each with one embedded threaded hole approximately 0.47 in. (12 mm) diameter and approximately 1.57 in. (40 mm) embedment, were tested. Ultimate loads were approximately 4.29, 3.88, 4.11, 3.66 and 3.93 kip (19.10, 17.24, 18.30, 16.29 and 17.47 kN), average approximately 3.97 kip (17.68 kN). Reported method designation: BS 5080-2:1993 (R2013), Section 7. Local reinforcing steel was provided around the connection boss; no additional glass-fiber mesh was used around the insert. These are ultimate test results for the tested configuration only, not allowable/design capacities. Original report and English translation can be provided upon request. Final design use requires confirmation of the actual panel/insert configuration, panel thickness, edge distance, reinforcement, loading direction, failure mode, and engineer-approved design factors. |
| **Fire Performance** | Current Chinese reference classification: A1 under the applicable Chinese test/classification basis. This Chinese classification is separate from applicable U.S. material and wall-assembly fire-test requirements. Applicable U.S. fire-test or assembly requirements, if triggered by the project, will be established for the represented product/finish and project conditions. |
| **U.S. Qualification / Testing Status** | For U.S. projects, applicable GFRC design and manufacturing requirements will be reviewed as part of the project-specific qualification process. The applicable material and connection testing, mock-up requirements, and project-specific engineering will be established as required based on the final element geometry, reinforcement, attachment system, design loads, exposure conditions, project specifications, and governing code requirements. |
| **Dimensional Tolerances** | Current manufacturing baseline: plan dimensions ±0.08 in. (±2 mm); surface flatness ≤0.08 in. (≤2 mm); thickness ±0.08 in. (±2 mm); complex/curved geometry ±0.12 in. (±3 mm). Final project tolerances must be coordinated and verified for actual panel size/geometry, frame and insert locations, joint design, measurement/support method, project specification, and installation requirements. |

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| **Embedded Inserts / Anchors** | Hot-dip galvanized steel inserts/sleeves, stainless-steel inserts/sleeves, and project-specific steel reinforcement/anchor components may be incorporated, subject to project-specific design, corrosion requirements, representative testing where required, and engineer-approved capacities. |
| **Typical Fixing Approaches** | Mechanically dry-fixed systems using engineered steel brackets/anchors connected to secondary façade framing or supporting structure; face-fixed systems may also be used where specifically designed. Final attachment systems, support spacing, edge distances, and design capacities are project-specific. |
| **Design Considerations** | Connection and element design should account for self-weight, wind loads, seismic movement where applicable, thermal movement, differential building movement, corrosion protection, joint design, erection tolerances, access, handling, and installation adjustment. Material or connection test results in this TDS are not allowable design values. |
| **Jointing / Weatherproofing / Façade-System Boundary** | GFRC is one component of the exterior wall and is not by itself an air/water barrier or complete façade system. Sealant joints, open/drained joints, and profiled or interlocking arrangements may be used as appropriate. Joint design must be coordinated with the backup wall, air/water/thermal control layers, flashings, drainage, movement, interfaces, installation, and maintenance strategy. |
| **Packaging and Transport** | Components may be shipped in timber crates, steel A-frames, or project-specific transport frames. Protect arrises, returns, projecting profiles, inserts, and finished surfaces. Packaging and restraint should minimize torsion, impact, and localized point loading during handling and transport. |
| **Installation** | Install in accordance with approved shop drawings, project-specific engineering, and site requirements. Verify component dimensions and supporting conditions before installation; set out and position accurately; use specified anchors and corrosion-protection measures; maintain required movement joints and weatherproofing; control alignment and tolerances; protect finished work; and comply with applicable site-safety requirements. |
| **Maintenance** | Clean with clean water and a pH-neutral detergent unless otherwise recommended for the selected finish. Periodically inspect sealant joints, coatings, anchors, visible cracking, impact damage, staining, and other project-specific maintenance items. |
| **Warranty** | Any manufacturing-defect, finish, coating, or project warranty is subject to the final contract, supplied scope, installation responsibility, exposure conditions, and maintenance requirements. No universal warranty period is stated in this preliminary TDS. |