# GRG General Technical Data Sheet - Custom Interior Architectural Elements

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

## 1. Material Overview

Glass Fiber Reinforced Gypsum (GRG; also referred to as GFRG) is a gypsum-based composite intended for lightweight, non-load-bearing interior architectural applications. The principal matrix is alpha-type high-strength hemihydrate gypsum reinforced with alkali-resistant (AR) glass fiber and glass-fiber mat. Typical applications include ceilings, wall features, column covers, domes, light coves, moldings, trims, feature walls, and custom interior forms requiring smooth finishes and complex geometry. Standard GRG/GFRG is intended for dry interior environments; shell thickness, local reinforcement, ribs, backing/support, suspension, joints, and interfaces are project-specific.

*Technical status note: Values attributed to Report No. ZR032404471852-1, dated 23 March 2026, are third-party results obtained under the Chinese methods identified in that report and are provided as supplemental technical reference data. Applicable material testing, attachment qualification, fire evaluation, engineering and installation requirements will be established on a project-specific basis.*

## 2. Product Information and Current Reference Data

| Item | Current Reference Information / U.S. Position |
|---|---|
| **Material Name** | Glass Fiber Reinforced Gypsum (GRG; also referred to as GFRG). |
| **Primary Applications** | Interior ceilings and ceiling clouds; wall panels and feature walls; column covers; domes; light coves; moldings and trims; custom architectural shapes; suspended feature forms; and other lightweight non-load-bearing interior decorative elements. |
| **Use Limitation** | Dry-interior, non-load-bearing architectural components only. Each molded part, rib, insert, suspension point, backing/support and connection must be coordinated for the actual project conditions and loads. |
| **Material Composition / Purchased Materials** | Principal matrix: alpha-type high-strength hemihydrate gypsum. Reinforcement uses alkali-resistant (AR) glass fiber, typically approximately 0.71-0.87 in. (18-22 mm) in length, together with glass-fiber mat. Exact glass-fiber dosage remains unstated until confirmed. Manufacturer technical data and available certification for the alpha gypsum, AR-glass reinforcement and other relevant purchased materials should be maintained and made available upon request. |
| **Manufacturing Process** | Primarily mold casting with localized hand placement of glass-fiber mat, reinforcement, integral ribs and embedded components. Spray forming is not the standard manufacturing method for these GRG/GFRG elements. Part geometry, local build-up and embedded items are adjusted to the approved project/shop-drawing requirements. |

| Item | Current Reference Information / U.S. Position |
|---|---|
| **Reinforcement / Backing** | Glass-fiber mat and AR glass fiber are used with integral GRG/GFRG reinforcing ribs and embedded metal connection components. Steel backing/support frames may be incorporated for unusually large or demanding pieces. Wood backing is not represented as structural reinforcement. Final reinforcement and backing/support configuration is project-specific. |
| **Typical Shell Thickness** | Typical ceiling/architectural shell thickness is approximately 0.47-0.59 in. (12-15 mm). A stable minimum of approximately 0.39 in. (10 mm) may be feasible for smaller, low-curvature pieces. Local thickness increases at edges, returns, ribs, inserts and connection zones are project-specific; these local build-ups should not be interpreted as uniform shell thickness. |
| **Integral Reinforcing Ribs** | Rear integral reinforcing ribs are typically approximately 0.79-1.38 in. (20-35 mm) in local rib depth/build-up, with final rib geometry established by part size, stiffness, deformation control, suspension and attachment requirements. This rib dimension is local and is not the uniform shell thickness; local overall depth through a rib/connection zone may therefore exceed the typical shell thickness. |
| **Density / Unit Weight** | Supplemental Chinese-standard result: approximately 119 pcf (1.9 g/cm$^3$) bulk density; referenced requirement in Report No. ZR032404471852-1: ≥94 pcf (≥1.5 g/cm$^3$). Actual piece weight depends on shell thickness, ribs, local build-up, embedded components and backing/support. |
| **Reference Module Size / Segmentation** | Common modules are approximately 47.2 x 94.5 in. (1,200 x 2,400 mm). Larger or complex components should be reviewed for segmentation, handling, suspension, joint control, transportation and installation tolerance. |
| **Surface / Finishing** | Factory manufacture typically provides a white/off-white unfinished molded substrate, smooth or with project-specific texture. Field work may include joint repair/filling, overall skim coat, sanding, primer and architectural paint/finish to integrate joints and achieve the intended visually monolithic appearance. Factory manufacture and project-specific field jointing/finishing should remain clearly distinguished. Final appearance is subject to approved sample/mock-up and finish system. |
| **Use Environment** | Dry interior applications only. Standard GRG/GFRG is not intended for exterior weather exposure, wet rooms, prolonged moisture exposure, standing water, or freeze-thaw conditions. Service humidity/temperature limits should be established where required by the project. |
| **Flexural Strength at Proportional Limit** | Supplemental Chinese-standard result: approximately 0.93 ksi (6.4 MPa); referenced requirement ≥0.58 ksi (≥4.0 MPa). Source: Report No. ZR032404471852-1. |
| **Flexural Failure Strength** | Supplemental Chinese-standard result: approximately 1.84 ksi (12.7 MPa); referenced requirement ≥1.45 ksi (≥10.0 MPa). Source: Report No. ZR032404471852-1. |

| Item | Current Reference Information / U.S. Position |
|---|---|
| **Tensile Strength** | Supplemental Chinese-standard result: approximately 0.65 ksi (4.5 MPa); referenced requirement ≥0.44 ksi (≥3.0 MPa). Source: Report No. ZR032404471852-1. Supplemental property only unless required by the project specification. |
| **Impact Resistance** | Supplemental Chinese-standard result: approximately 192 ft·lbf/ft³ (laboratory-reported value 9.2 kJ/m³); referenced requirement ≥125 ft·lbf/ft³ (≥6.0 kJ/m³). Source: Report No. ZR032404471852-1. |
| **Water Absorption** | Supplemental Chinese-standard result: 4.6%; referenced requirement ≤8.0%. Source: Report No. ZR032404471852-1. Water absorption alone does not establish humidified-deflection performance. |
| **Barcol Hardness** | Supplemental Chinese-standard result: 38; referenced requirement ≥30. Report No. ZR032404471852-1 lists GB/T 3854-2017 among the test standards. |
| **Hanger / Attachment Evidence** | Supplemental laboratory result: approximately 982 lbf (4.37 kN) hanger attachment-to-panel ultimate result for the tested configuration in Report No. ZR032404471852-1. This is not an allowable design load. Capacity must be established for the actual rib, insert/hanger, embedment, loading direction, support/substrate, conditioning, redundancy and project loads. Applicable insert-manufacturer technical documentation should be available where required. |
| **Formaldehyde Release** | Supplemental Chinese-standard result: 0.021 mg/m³; referenced requirement ≤0.025 mg/m³. Source: Report No. ZR032404471852-1. This result is not represented as a U.S. indoor-air-emissions certification; project-specific low-emitting-material requirements require the applicable U.S. method/certification where specified. |
| **Fire Performance** | Chinese classification reported in Report No. ZR032404471852-1: GB 8624 Class A1 based on the identified GB/T methods. This is a Chinese fire classification; U.S. fire testing/classification, where required, will be established for the specific product, finish and project conditions. |
| **U.S. Qualification Position** | For U.S. projects, ASTM C1355/C1355M (GRG composite), ASTM C1381/C1381M (molded GRG parts) and ASTM C1467/C1467M (installation) provide relevant technical references. Applicable material testing, fire evaluation, attachment design, shop-drawing and installation requirements will be established for each project. |
| **Humidified Deflection** | Representative humidified-deflection data are not yet available. Where humidity-sensitive performance is required by the project, the applicable representative test basis and acceptance criteria should be established before project approval. |
| **Dimensional Tolerances** | Baseline factory tolerances for pieces approximately ≤6.56 ft (≤2 m): general dimensions ±0.12 in. (±3 mm); thickness ±0.12 in. (±3 mm); bow/warpage ≤0.12 in. (≤3 mm); embedded suspension/attachment locations ±0.08 in. (±2 mm). Larger or complex parts require project-specific review. Bow/warpage support and measurement basis should be defined in the approved shop drawing or QC inspection procedure before use as a contractual acceptance criterion. |

| Item | Current Reference Information / U.S. Position |
|---|---|
| **Suspension / Attachment Concepts** | Suspension points are typically developed at rear integral reinforcing ribs. Hot-dip galvanized transition inserts may be embedded within the rib and fully surrounded by GRG/GFRG material; unusually large pieces may incorporate a steel backing/support frame. Final insert/hanger type, embedment, spacing, substrate/support, redundancy and capacity are project-specific and must be established for the applicable loads. Insert-manufacturer technical data should be maintained where applicable. |
| **Production / QC** | Baseline factory QC includes incoming alpha-gypsum, glass-fiber/mat and purchased-material checks; batching/mixing control; mold preparation; mold casting; localized hand placement of glass-fiber mat/reinforcement and embedded items; shell/rib/insert checks; curing/drying; demolding/trimming; dimensional, bow/warpage and appearance inspection; acceptance; part/batch identification; and production records. Project-specific inspection, testing, documentation and traceability requirements should be added where required. |
| **Design Considerations** | Coordinate molded-part geometry, shell/rib configuration, suspension/support, inserts, ceiling or wall framing, MEP services, lighting, access panels, joint locations, building movement, project loads/seismic requirements, support conditions, indoor humidity and installation access. Final details should be shown on approved project shop drawings and supported by project-specific engineering where required. |
| **Jointing / Finish Integration** | Field joints are typically repaired/filled, skim-coated as required, sanded, primed and painted to achieve the intended visually monolithic appearance where detailed. Movement joints should be provided where required by the building and finish design. Joint/finish materials and field finishing are project-specific and may affect fire or emissions requirements. |
| **Packaging and Transport** | Transport in dry packaging with corners and fragile sections protected. Keep products rainproof and moisture-protected during transportation, storage and installation; prevent contact with standing water; store flat indoors or support as required to avoid concentrated local stress or deformation. |
| **Installation** | Install in accordance with approved shop drawings and project-specific support/suspension, fixing, jointing and finish requirements. Coordinate framing, MEP openings, lighting fixtures, access panels and final painting before installation. ASTM C1467/C1467M may be used as the U.S. installation reference where applicable to the project. |
| **Maintenance** | Clean with a dry cloth or slightly damp soft cloth. Avoid soaking, high-pressure water washing, abrasive cleaners, prolonged high humidity and water leakage. Compatible gypsum repair compound may be used for local dents or joint repairs, followed by sanding and repainting. |
| **Warranty** | Project-specific warranty terms and conditions are available upon request and should be coordinated with the project specification, installation scope, finish system and service conditions. |