



Designation: C1381/C1381M – 23

# Standard Specification for Molded Glass Fiber Reinforced Gypsum Parts<sup>1</sup>

This standard is issued under the fixed designation C1381/C1381M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope\*

1.1 This specification covers molded glass fiber reinforced gypsum (GRG) parts, which are nonload-bearing, thin-shell, ornamental shapes for architectural embellishment of interior building construction.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.3 The information presented refers to the molded surface of the part.

1.4 The text of this standard references footnotes, which provide explanatory material. These footnotes shall not be considered as requirements of the standard.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

**C11 Terminology Relating to Gypsum and Related Building Materials and Systems**

**C1355/C1355M Specification for Glass Fiber Reinforced Gypsum Composites**

## 3. Terminology

3.1 *Definitions*—Definitions of terms shall be in accordance with Terminology **C11**.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee **C11** on Gypsum and Related Building Materials and Systems and is the direct responsibility of Subcommittee **C11.01** on Specifications and Test Methods for Gypsum Products.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## 3.2 Definitions of Terms Specific to This Standard:

3.2.1 *control thickness, n*—the thickness of the GRG part where abutting other GRG parts, other products or at fastening points.

3.2.2 *embedments, n*—materials encapsulated into the part for the purpose of suspension, attachment, and stiffening.

3.2.3 *finish surface, n*—a surface against a mold.

3.2.4 *GRG part, n*—an individual molded component used as architectural embellishment.

3.2.5 *GRG product, n*—combination of GRG parts used as architectural embellishment.

3.2.6 *mock-up, n*—a presentation assembly of GRG parts defined by the purchase agreement.

3.2.7 *part thickness, n*—thickness of a part at any measurement point.

## 4. Materials and Manufacture

4.1 *Materials*—GRG parts shall be produced using the same materials used to make the composites in conformance with Specification **C1355/C1355M**.

4.2 *Manufacture:*

4.2.1 GRG parts shall be manufactured from the mixed slurry of gypsum cement, potable water and additives, when used, and not less than 5 % by weight glass fiber reinforcement using either the hand lay-up or the spray-up process in a mold.

4.2.2 GRG parts shall be produced according to approved shop drawings.

4.2.3 Shop drawings shall specify part dimensions, quantities, recommended attachment points and methods, reinforcements, embedments, and tolerance.

## 5. Mechanical Properties

5.1 GRG parts shall be made from materials to make composites having properties in accordance with Specification **C1355/C1355M**.

## 6. Dimensions and Tolerances of GRG Parts

6.1 *Part Thickness*—The thickness of the GRG part shall be not less than  $\frac{3}{16}$  in. [5 mm].

6.2 *Control Thickness*, shall be not less than  $\frac{5}{16}$  in. [8 mm].

\*A Summary of Changes section appears at the end of this standard

6.3 *Straightness*—At any point on a line generally along a plane, an edge, or a surface, the molded side of the part shall not vary from straight  $\pm 1/8$  inches in 8 linear ft [1 mm in 750 mm].

6.4 *Dimensions*, as specified in approved shop drawings, pertaining to the individual part.

6.4.1 *Overall Width*,  $\pm 1/8$  in. [3 mm].

6.4.2 *Dimensions Within the Overall Width*,  $\pm 1/16$  in. [2 mm].

6.4.3 *Overall Length*,  $\pm 1/8$  in. [3 mm].

6.4.4 *Dimensions Within the Overall Length*,  $\pm 1/16$  in. [2 mm].

## 7. Workmanship, Finish, and Appearance

7.1 GRG parts shall be produced to quality, tolerances, and surface standards set within this specification.

7.2 The standard finished surface shall be suitable to receive flat paint.

7.3 Finishes with sheen, direct light or special lighting conditions require additional coats of primer, sanding and finishing by the installer or painter.

## 8. Sampling

8.1 When specified by the purchase agreement, samples of the GRG part shall be taken at the place of manufacture for measuring in accordance with Section 6.

8.2 *Mock-Up*—When specified by the purchase agreement, a mock-up shall be supplied.

## 9. Inspection

9.1 Inspection of the GRG parts shall be agreed upon between the purchaser and the supplier as part of the purchase agreement.

## 10. Rejection and Rehearing

10.1 Rejection of GRG parts that fail to conform to the requirements of this specification shall be reported in writing to the producer or supplier within 14 calendar days from receipt of parts and prior to installation.

## 11. Certification

11.1 When specified in the purchase agreement, the purchaser shall be furnished certification that samples representing each lot have been either tested or inspected as directed in this specification and the requirements have been met. When specified in the purchase agreement, a report of test results shall be furnished.

## 12. Quality Assurance

12.1 Each manufacturer's measuring of samples shall be representative of actual production procedures and materials. The GRG manufacturer shall certify that the materials are the same as those used to produce the composite according to **C1355/C1355M**.

## 13. Marking

13.1 Each GRG part shall be marked clearly according to the project shop drawings.

## 14. Packaging

14.1 Packaging shall ensure that the GRG parts arrive at the jobsite in good condition when handled and shipped according to industry operating standards.

## 15. Keywords

15.1 glass fiber reinforced gypsum; glass fiber reinforced gypsum composite; glass fiber reinforced gypsum parts; GRG; GRG composites; GRG parts

## SUMMARY OF CHANGES

Committee **C11** has identified the location of selected changes to this standard since the last issue (C1381/C1381M – 97 (2018)) that may impact the use of this standard. (Approved March 1, 2023.)

(1) Revised **4.2.1** to remove the requirement for alpha gypsum to be the sole permitted type, as beta gypsum is also used in the manufacture of GRG parts.

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