



## Standard Specification for Fiber-Reinforced Gypsum Panels<sup>1</sup>

This standard is issued under the fixed designation C 1278/C 1278M; 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 fiber-reinforced gypsum panels designed to be used for walls, ceilings, or partitions and affords a suitable surface to receive decoration.

1.2 The values stated in either inch-pound units or SI (metric) are to be regarded separately as the standard. Within the text, the SI units are shown in brackets. The values stated in each system shall be used independently of the other. Values from the two systems shall not be combined.

1.3 The text of this specification references notes and footnotes that provide explanatory material. These notes and footnotes shall not be considered as requirements of the standard.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

C 11 Terminology Relating to Gypsum and Related Building Materials and Systems<sup>2</sup>

C 22 Specification for Gypsum<sup>2</sup>

C 473 Test Methods for Physical Testing of Gypsum Board Products and Gypsum Lath<sup>2</sup>

C 645 Specification for Nonstructural Steel Framing Members<sup>2</sup>

C 1264 Specification for Sampling, Inspection, Rejection, Certification, Packaging, Marking, Shipping, Handling, and Storage of Gypsum Board<sup>2</sup>

E 84 Test Method for Surface Burning Characteristics of Building Materials<sup>3</sup>

E 96 Test Methods for Water Vapor Transmission of Materials<sup>4</sup>

E 119 Test Methods for Fire Tests of Building Construction and Materials<sup>3</sup>

### 3. Terminology

3.1 *Definitions*—Definitions of terms shall be in accordance with Terminology C 11.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C-11 on Gypsum and Related Building Materials and is the direct responsibility of Subcommittee C11.01 on Specifications and Test Methods for Gypsum Products.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 04.07.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 04.06.

### 4. Materials and Manufacture

4.1 Fiber-reinforced gypsum panels shall consist essentially of gypsum with fibers dispersed throughout.

4.1.1 *Gypsum*—Specification C 22.

4.1.2 *Fibers*—Cellulose, derived from paper, paperboard stock, wood, or other organic material.

4.2 The back surface of foil-backed fiber-reinforced gypsum panels shall in addition be covered with aluminum foil.

4.3 Fiber-reinforced gypsum panels, type X (special fire-resistant) designates fiber-reinforced gypsum panels complying with this specification that provide not less than 1-h fire resistance for panels  $\frac{5}{8}$ -in. [15.9-mm] thick or  $\frac{3}{4}$ -h fire resistance for panels  $\frac{1}{2}$ -in. [12.7-mm] thick, applied parallel with and on each side of load bearing 2 by 4 wood studs spaced 16 in. [406 mm] on center with 6d coated nails,  $1\frac{1}{8}$ -in. [48-mm] long, 0.0915-in. [2.3-mm] diameter shank,  $\frac{1}{4}$ -in. [6.4-mm] diameter heads, spaced 7 in. [178 mm] on center with fiber-reinforced gypsum panel joints staggered 16 in. [406 mm] on each side of the partition and tested in accordance with Test Methods E 119.

NOTE 1—Consult producers for independent test data on assembly details and fire resistance classifications for other types of construction. See official fire test reports for assembly particulars, materials, and classification.

4.4 Fiber-reinforced gypsum panels shall have a flame spread index of not more than 25 when tested in accordance with Test Method E 84.

### 5. Mechanical Properties

5.1 Specimens shall be taken from the samples obtained in accordance with Specification C 1264.

5.2 Specimens shall be tested in accordance with Test Methods C 473.

5.2.1 *Flexural Strength*—The specimens shall have an average breaking load of not less than the following when tested face up or face down:

Thickness, in. [mm]	Breaking Load, lbf [N], Bearing Edges Parallel or Perpendicular to Panel Length, Method B
$\frac{1}{4}$ [6.4]	50 [222]
$\frac{3}{16}$ [7.9]	65 [289]
$\frac{3}{8}$ [9.5]	75 [334]
$\frac{1}{2}$ [12.7]	110 [490]
$\frac{5}{8}$ [15.9]	155 [689]

5.2.2 *Humidified Deflection*—The specimens shall have an average deflection of not more than the following: