



Standard Specification for Gypsum Wallboard¹

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This specification has been approved for use by agencies of the Department of Defense. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

1. Scope

1.1 This specification covers gypsum wallboard, that is designed to be used for walls, ceilings, or partitions and affords a surface suitable to receive decoration.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of inch-pound units may be approximate.

2. Referenced Documents

2.1 ASTM Standards:

- C 473 Test Methods for Physical Testing of Gypsum Board Products and Gypsum Lath²
- E 84 Test Method for Surface Burning Characteristics of Building Materials³
- E 96 Test Methods for Water Vapor Transmission of Materials⁴
- E 119 Test Methods for Fire Tests of Building Construction and Materials³

3. Materials and Manufacture

3.1 Gypsum wallboard shall consist of an incombustible core, essentially gypsum, surfaced with paper bonded to the core.

3.2 The back surface of foil-backed gypsum wallboard shall in addition be covered with aluminum foil.

3.3 Type X (special fire-resistant) designates gypsum wallboard complying with this specification that provides at least 1-h fire-retardant rating for boards 5/8 in. (15.9 mm) thick or 3/4-h fire-resistance classification for boards 1/2 in. (12.7 mm) thick, applied to a partition in single-layer nail application on each face of loadbearing wood framing members, when tested in accordance with the requirements of Test Methods E 119.

3.4 Gypsum wallboard shall have a maximum flame-spread classification of 25 when tested in accordance with the requirements of Test Method E 84.

NOTE—Consult manufacturers 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 classifications.

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² Annual Book of ASTM Standards, Vol 04.01.

³ Annual Book of ASTM Standards, Vol 04.07.

⁴ Annual Book of ASTM Standards, Vols 04.06, 08.03, and 15.09.

4. Physical Properties

4.1 *Flexural Strength*—Specimens shall be tested in accordance with Test Methods C 473. When tested face up and when tested face down the specimens shall have an average breaking load of not less than the following:

Thickness, in. (mm)	Method A		Method B	
	Load, lbf (N) Bearing Edges Across Fiber of Surfacing	Load, lbf (N) Bearing Edges Parallel to Fiber of Surfacing	Load, lbf (N) Bearing Edges Across Fiber of Surfacing	Load, lbf (N) Bearing Edges Parallel to Fiber of Surfacing
1/4 (6.4)	50 (222)	20 (89)	46 (205)	16 (71)
5/16 (8)	65 (289)	25 (111)	62 (276)	21 (93)
3/8 (9.5)	80 (356)	30 (133)	77 (343)	26 (116)
1/2 (12.7)	110 (489)	40 (178)	107 (476)	36 (160)
5/8 (15.9)	150 (667)	50 (222)	147 (654)	46 (205)

4.2 *Humidified Deflection*—When tested in accordance with Test Methods C 473, specimens taken from the gypsum wallboard shall have an average deflection of no more than the following:

Thickness, in. (mm)	Humidified Deflection, Eighths of an inch (mm)
1/4 (6.4)	not applicable
5/16 (8)	not applicable
3/8 (9.5)	15 (48)
1/2 (12.7)	10 (32)
5/8 (15.9)	5 (16)

4.3 *Core, End, and Edge Hardness*—When tested in accordance with Test Methods C 473, specimens taken from the gypsum wallboard shall have an average hardness of not less than 15 lbf (67 N) when tested by Test Method A and 11 lbf (49 N) when tested by Test Method B for the core, ends, or edges.

4.4 *Nail Pull Resistance*—When tested in accordance with Test Methods C 473, specimens taken from the gypsum wallboard shall have an average nail pull resistance of not less than the following:

Thickness, in. (mm)	Method A Nail Pull Resistance, lbf (N)	Method B Nail Pull Resistance, lbf (N)
1/4 (6.4)	40 (178)	36 (160)
5/16 (8)	50 (222)	46 (205)
3/8 (9.5)	60 (267)	56 (249)
1/2 (12.7)	80 (356)	77 (343)
5/8 (15.9)	90 (400)	87 (387)

5. Dimensions and Permissible Variations

5.1 *Thickness*—The nominal thickness of gypsum wall-

board shall be $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, or $\frac{5}{8}$ in. (6.4, 8, 9.5, 12.7, or 15.9 mm), with permissible variations in the nominal thickness of $\pm\frac{1}{64}$ in. (0.4 mm) with permissible local variations of $\pm\frac{1}{32}$ in. (0.8 mm) from the nominal thickness. Edges of $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{5}{8}$ -in. board may be either square, recessed, featured, tapered, or featured and tapered. The average thickness of the edge of recessed to tapered-edge wallboard shall be at least 0.015 in. (0.38 mm) but not more than 0.075 in. (1.90 mm) less than the average thickness of the wallboard as determined in accordance with Test Methods C 473.

5.2 *Width*—The nominal width of gypsum wallboard shall be up to 48 in. (1220 mm), with widths up to 54 in. (1370 mm) permitted, with a permissible variation of $\frac{3}{32}$ in. (2.4 mm) under the specified width.

5.3 *Length*—The nominal length of $\frac{1}{4}$ -in. (6.4-mm) gypsum wallboard shall be from 4 to 12 ft (1.2 to 3.7 m), $\frac{5}{16}$ in. (8-mm) gypsum wallboard shall be from 4 to 14 ft (1.2 to 4.3 m), and $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{5}{8}$ -in. (9.5, 12.7, and 15.9 mm) wallboard shall be from 4 to 16 ft (1.2 to 4.9 m), inclusive, with permissible variations of $\pm\frac{1}{4}$ in. from the specified length.

6. Workmanship, Finish, and Appearance

6.1 The surfaces of gypsum wallboard shall be true and free from imperfections that would render the wallboard unfit for use with or without decoration. The edges and ends shall be straight. The corners shall be square with a permissible variation of $\pm\frac{1}{8}$ in. (± 3.2 mm) in the full width of the board.

7. Sampling

7.1 At least 0.25 % of the number of gypsum wallboards in a shipment, but not less than three boards, shall be so selected as to be representative of the shipment and shall constitute a sample for purpose of tests by the purchaser or user.

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8. Additional Requirements for Foil-Backed Gypsum Wallboard

8.1 Foil-backed gypsum wallboard shall meet all the requirements specified above. In addition, the back surface shall be covered with pure bright-finished aluminum foil.

8.2 When tested in accordance with Test Methods E 96, the permance of foil-backed gypsum wallboard shall not exceed 0.30 perm for the condition of 50 % relative humidity on Side I, the face of the board, and 0 % relative humidity on Side II, the foil-covered back of the board.

9. Inspection

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

10. Rejection

10.1 Gypsum wallboard that fails to conform to the requirements of this specification may be rejected. Rejection shall be reported to the producer or supplier promptly and in writing. The notice of rejection shall contain a statement documenting how the gypsum wallboard has failed to conform to the requirements of this specification.

11. Certification

11.1 When specified in the purchase agreement, a manufacturer's or supplier's report shall be furnished at the time of shipment certifying that the product is in compliance with this specification.

12. Packaging and Package Marking

12.1 Gypsum wallboard shall be shipped so as to be kept dry.

12.2 When shipped for resale, the name of the manufacturer or seller and the brand shall be legibly marked on each board or package.

13. Keywords

13.1 gypsum board; gypsum wallboard