



Standard Specification for Water-Resistant Gypsum Backing Board¹

This standard is issued under the fixed designation C 630/C 630M; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This specification covers water-resistant gypsum backing board that is designed primarily to be used as a base for the application of ceramic or plastic tile on walls or ceilings. This product is also suitable for decoration.

NOTE 1—Specification C 840 contains application procedures for water-resistant gypsum backing board.

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

1.3 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) 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 Systems²
- C 473 Test Methods for Physical Testing of Gypsum Board Products and Gypsum Lath²
- C 645 Specification for Nonstructural Steel Framing Members²
- C 840 Specification for Application and Finishing of Gypsum Board²
- C 1264 Specification for Sampling, Inspection, Rejection, Certification, Packaging, Marking, Shipping, Handling, and Storage of Gypsum Board²
- E 119 Test Methods for Fire Tests of Building Construction and Materials³

3. Terminology

3.1 Definitions used in this specification shall be in accordance with Terminology C 11.

¹ 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. Current edition approved July 10, 2000. Published September 2000. Originally published as C 630 – 68T. Last previous edition C 630 – 96a.

² Annual Book of ASTM Standards, Vol 04.01.

³ Annual Book of ASTM Standards, Vol 04.07.

4. Materials and Manufacture

4.1 Water-resistant gypsum backing board shall consist of a noncombustible water-resistant core, essentially gypsum, surfaced on both the face and back of the board with water-repellent paper bonded to the core.

4.2 Water-resistant gypsum backing board, type X (special fire resistant), designates water-resistant gypsum backing board complying with this specification that provides not less than 1-h fire-resistance for boards $\frac{5}{8}$ in. [15.9 mm] thick or $\frac{3}{4}$ -h fire-resistance for boards $\frac{1}{2}$ in. [12.7 mm] thick, applied parallel with and on each side of load bearing 2×4 wood studs spaced 16 in. [406 mm] on center with 6d coated nails, $1\frac{7}{8}$ in. [48 mm] long, 0.0915 in. [2.32 mm] diameter shank, $\frac{1}{4}$ in. [6.4 mm] diameter heads, spaced 7 in. [178 mm] on center with gypsum backing board joints staggered 16 in. [406 mm] on each side of the partition and tested in accordance with the requirements of Test Methods E 119.

NOTE 2—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 classifications.

5. Physical 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 be tested face up and face down. The average breaking load shall be 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
$\frac{1}{2}$ [12.7]	110 [489]	40 [178]	107 [476]	36 [160]
$\frac{5}{8}$ [15.9]	150 [667]	50 [222]	147 [654]	46 [205]

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

Thickness, in. [mm]	Humidified Deflection, Eighths of an in. [mm]
$\frac{1}{2}$ [12.7]	10 [32]
$\frac{5}{8}$ [15.9]	5 [16]

5.2.3 *Core, End, and Edge Hardness*—The specimens shall

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

have an average hardness of not less than 15 lbf [67 N] when tested by Method A and 11 lbf [49 N] when tested by Method B.

5.2.4 *Nail Pull Resistance*—The specimen shall have an average nail-pull resistance of not less than the following:

Thickness, in. [mm]	Method A	Method B
	Nail Pull Resistance, lbf [N]	Nail Pull Resistance, lbf [N]
½ [12.7]	80 [356]	77 [343]
⅝ [15.9]	90 [400]	87 [387]

5.2.5 *Water Resistance*—The three specimens selected shall have an average water absorption of not more than 5 weight % after 2 h of immersion.

5.2.6 *Surface Water Absorption*—The specimens shall have an average surface water absorption of not more than 1.6 g on each surface, face and back, after 2 h of elapsed time.

6. Dimensions and Permissible Variations

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

6.2 Thickness, width, length, tapered edge depth, and end squareness shall be determined in accordance with Test Methods C 473.

6.2.1 *Thickness*—The nominal thickness shall be ½ or ⅝ in. [12.7 or 15.9 mm] with permissible variations in the nominal thickness of ¼ in. [0.4 mm] with permissible local variations of ⅛ in. [0.8 mm] from the nominal thickness.

6.2.2 *Width*—The nominal width shall be up to 48 in. [1220 mm], with widths up to 54 in. [1370 mm] permitted, with a permissible variation of ⅜ in. [3 mm] under the specified width.

6.2.3 *Length*—The nominal length and permissible variation shall be as follows:

Thickness, in. [mm]	Length, ft [mm]	Variation, in. [mm]
½ [12.7]	4 to 16 [1220 to 4880]	±¼ [6]
⅝ [15.9]	4 to 16 [1220 to 4880]	±¼ [6]

6.2.4 *Tapered Edge Depth*—The average thickness of the edge of recessed or tapered edge shall be not less than 0.015 in. [0.38 mm] but not more than 0.075 in. [1.90 mm] less than the average thickness of the water-resistant gypsum backing board.

6.2.5 *End Squareness*—Corners shall be square with a permissible variation of ⅛ in. [3 mm] in the full width of the board.

6.3 *Edges and Ends*—The edges and ends shall be straight and either square, recessed, beveled, featured, tapered, or featured and tapered.

7. Finish and Appearance

7.1 The surfaces of water-resistant gypsum backing board shall be true and free from imperfections that would render the board unfit for its designed use.

8. Sampling, Inspection, Rejection, Certification, Packaging, Marking, Shipping, Handling, and Storage

8.1 Sampling, Inspection, Rejection, Certification, Packaging, Marking, Shipping, Handling, and Storage of water-resistant gypsum backing board shall be in accordance with Specification C 1264.

9. Keywords

9.1 ceiling; gypsum; partitions; wall; water-resistant gypsum backing board; water-resistant gypsum backing board; type X

APPENDIX

(Nonmandatory Information)

This appendix gives general information and also suggestions for inclusions to be made elsewhere by the specifier. They are not part of this specification.

X1. ALTERNATE DEFINITION FOR TYPE X

X1.1 Water-resistant gypsum backing board, type X (special fire-resistant) designates water-resistant gypsum backing board providing a greater fire resistance than regular water-resistant gypsum backing board of the same thickness. Type X (special fire-resistant) water-resistant gypsum backing board, when tested in accordance with Test Methods E 119, shall provide the following minimum fire resistance for the assemblies described.

X1.1.1 One hour for a ⅝ in. [15.9 mm] thickness applied to a partition in a single layer application on each side of 3½ in. [92 mm] deep non-loadbearing galvanized steel studs complying with Specification C 645, spaced 24 in. [610 mm] on center. The ⅝ in. [15.9 mm] thick water-resistant gypsum backing board 48 in. [1220 mm] wide shall be attached using 1 in. [25 mm] long drywall screws spaced 8 in. [203 mm] on center along the edges and ends, and 12 in. [305 mm] along

intermediate studs. All joints shall be oriented parallel to and located over studs and staggered on opposite sides of the assembly. All joints shall be filled with joint compound, covered with joint tape, and covered with another coat of joint compound. All screw heads shall be covered with joint compound, and

X1.1.2 Two hours for a ½ in. [12.7 mm] thickness applied to a partition in a double layer application on each side of 2½ in. [64 mm] deep non-loadbearing galvanized steel studs complying with Specification C 645, spaced 24 in. [610 mm] on center. The 48 in. [1220 mm] wide base layer shall be attached using 1 in. [25 mm] long drywall screws spaced 12 in. [305 mm] on center along board edges, ends, and along intermediate studs. Joints shall be oriented parallel to and located over studs and staggered on opposite sides of the assembly. The 48 in. [1220 mm] wide face layer shall be attached using 1½ in. [41 mm] long drywall screws spaced 12

in. [305 mm] along board edges, ends, and along intermediate studs. Joints shall be oriented parallel to and located over studs, offset 24 in. [610 mm] from the base layer joints, and staggered on opposite sides of the assembly. All joints in the face layer

shall be filled with joint compound, covered with joint tape, and covered with another coat of joint compound. All screw heads in the face layer shall be covered with two coats of joint compound.

SUMMARY OF CHANGES

Committee C-11 has identified the location of selected changes to this standard since the last issue (C 630/C 630M-96a) that may impact the use of this standard.

(1) Revised paragraph 5.2.6.

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