



Designation: C 473 – 00

Standard Test Methods for Physical Testing of Gypsum Panel Products¹

This standard is issued under the fixed designation C 473; 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 (ε) indicates an editorial change since the last revision or reapproval.

1. Scope *

1.1 These test methods cover the physical testing of gypsum panel products.

1.2 The test methods appear in the following order:

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Flexural Strength (Method A)	7
Core, End and Edge Hardness (Method A)	8
Nail Pull Resistance (Method A)	9
Flexural Strength (Method B)	11
Core, End and Edge Hardness (Method B)	12
Nail Pull Resistance (Method B)	13
Humidified Deflection	14
End Squareness	15
Nominal Thickness	16
Recessed- or Tapered Edge Depth	17
Width	18
Length	19
Water Resistance of Core-Treated Water-Repellent Gypsum Panel Products	20
Surface Water Resistance of Gypsum Panel Products with Water-Repellent Surfaces	21

1.3 The text of these test methods references notes and footnotes that provide explanatory material. These notes and footnotes, excluding those in tables and figures, shall not be considered as requirements of these test methods.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 11 Terminology Relating to Gypsum and Related Building Materials and Systems²

D 3285 Test Method for Water Absorptiveness of Nonfibrous Paper and Paperboard (Cobb Test)³

E 4 Practices for Force Verification of Testing Machines⁴

3. Terminology

3.1 Definitions used in these test methods are in accordance

¹ These test methods are under the jurisdiction of ASTM Committee C-11 on Gypsum and Related Building Materials and Systems and are the direct responsibility of Subcommittee C11.01 on Specifications and Test Methods for Gypsum Products.

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² *Annual Book of ASTM Standards*, Vol 04.01.

³ *Annual Book of ASTM Standards*, Vol 15.09.

⁴ *Annual Book of ASTM Standards*, Vol 03.01.

with Terminology C 11.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *edge, n*—the paper-bound edge, or long edge, as manufactured.

3.2.2 *ends, n*—the end perpendicular to the paper-bound edge or long edge.

4. Sampling

4.1 For use in these test methods, a sample shall consist of not less than 0.25 % of the number of gypsum panel products in a shipment, but not less than three gypsum panel products. Test specimens shall be taken from the sample lot as indicated in each method.

5. Conditioning

5.1 Condition specimens to constant weight at a temperature of 85 ± 15°F (29.5 ± 8.5°C) and relative humidity of 50 ± 2 % (Note 1). Test specimens individually after constant weight is reached and within 10 min upon removal from the conditioning chamber.

NOTE 1—Laboratory test results indicated that conditioning temperatures may range from 70 to 100°F (21 to 38°C) without significantly affecting the results. However, relative humidity is critical. This is the reason for testing specimens within 10 min upon removal from the conditioning chamber.

Method A—Constant Rate of Loading

INTRODUCTION

The following procedures are applicable to so-called “shot machines” that utilize lead or steel shot that applies a load to the specimen at a constant stress rate or any other device that applies the load at a constant stress rate.

6. Apparatus—Method A

6.1 *Testing Machine*—Apply the test load at a uniform rate of 1 lbf/s (4.45 N/s) ± 10 %. Apply the load with a device independent of manual control of the rate of loading during an individual sample test (see Fig. 1). The deformation of the specimen controls the cross head speed.

7. Flexural Strength (Method A)

7.1 *Summary of Test Method*—Flexural properties of gypsum panel products are evaluated by supporting the specimen near the ends and applying a transverse load midway between the supports.

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