



Designation: C 208 – 95 (Reapproved 2001)

Standard Specification for Cellulosic Fiber Insulating Board¹

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

1. Scope

1.1 This specification covers the principal cellulosic fiber insulating board types, grades, and sizes. Requirements are specified for composition, construction, physical properties, tolerances, sampling procedures, and test methods.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric values given in parentheses are provided for information only.

1.3 When the installation or use of thermal insulation materials, accessories, and systems may pose safety or health problems, the manufacturer shall provide the user appropriate current information regarding any known problems associated with the recommended use of the company's products and shall also recommend protective measures to be employed in their safe utilization. The user shall establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.

2. Referenced Documents

2.1 ASTM Standards:

- C 168 Terminology Relating to Thermal Insulation²
 - C 209 Test Methods for Cellulosic Fiber Insulating Board²
 - C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots²
 - C 846 Practice for Application of Cellulosic Fiber Insulating Board for Wall Sheathing²
 - D 1037 Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials³
 - D 1554 Definitions of Terms Relating to Wood-Base Fiber and Particle Panel Materials³
 - D 2164 Methods of Testing Structural Insulating Roof Deck³
 - E 72 Methods of Conducting Strength Tests of Panels for Building Construction⁴
- #### 2.2 Federal Standard:

4900.1 Rev-1 U.S. Dept. of Housing and Urban Development Minimum Property Standards, One and Two Family Dwellings⁵

3. Terminology

3.1 For definitions of terms used in this specification, see Terminology C 168 and Definitions D 1554.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *cellulosic fiber insulating board*—a fibrous-felted, homogeneous panel made from ligno-cellulosic fibers (usually wood or cane) and having a density of less than 31 lb/ft³ (497 kg/m³) but more than 10 lb/ft³ (160 kg/m³).

3.2.1.1 *Discussion*—Cellulosic fiber insulating board is characterized by an integral bond which is produced by interfelting of the fibers, but which has not been consolidated under heat and pressure as a separate stage in manufacture. Other materials may be added during manufacture to improve certain properties.

4. Classification

4.1 Insulating board covered by this specification consists of six types:

4.1.1 *Type I*—Sound deadening board, for use in wall assemblies to control sound transmissions.

4.1.2 *Type II*—Roof insulation board, for use in various roofing systems.

4.1.2.1 *Grade 1*—Primarily for use under built up roof systems.

4.1.2.2 *Grade 2*—Primarily for use under single-ply roofing systems.

4.1.3 *Type III*—Ceiling tiles and panels.

4.1.3.1 *Grade 1*—Nonacoustical, for use as decorative wall and ceiling coverings.

4.1.3.2 *Grade 2*—Acoustical, for use as decorative, sound absorbing wall and ceiling coverings.

4.1.4 *Type IV*—Wall Sheathing.

4.1.4.1 *Grade 1*—Regular, for use as wall sheathing in frame construction.

4.1.4.2 *Grade 2*—Structural, for use as wall sheathing in frame construction. When installed in accordance with Practice

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² Annual Book of ASTM Standards, Vol 04.06.

³ Annual Book of ASTM Standards, Vol 04.10.

⁴ Annual Book of ASTM Standards, Vol 04.11.

⁵ Available from the U.S. Department of Housing and Urban Development, Construction Standards Division, HUD Building, Washington, DC 20410.

C 846, structural wall sheathing provides adequate racking resistance for use as exterior wall bracing.

4.1.5 *Type V*—Backer board, for use behind exterior finish in wall assemblies where there are no structural requirements.

4.1.6 *Type VI*—Roof deck, for use as roof decking for flat, pitched, or shed-type, open-beamed, ceiling-roof construction.

4.2 On occasion these products are used for other applications. The manufacturer and the purchaser shall agree upon any special requirements for such end uses.

5. Materials and Manufacture

5.1 Cellulosic fiber insulating board shall be manufactured from refined or partially refined ligno-cellulosic (wood or cane) fibers, by a felting or molding process, into homogeneous panels. Other ingredients may be added to provide or improve certain properties such as strength and water resistance, in addition to surface finishes for decorative products and special coatings which impart resistance to flame spread. The material is subjected to such drying temperatures as to effect complete destruction of rot producing fungi.

5.2 The finished board may be either single or multiple ply. When multiple-ply boards are supplied, a suitable moisture-resistant adhesive shall be used to join the plies.

6. Physical Properties

6.1 The insulating board shall conform to the physical properties in **Table 1**.

6.2 Roof products with a thickness of 1½ in., 2½ in., or greater, are post-laminated using thinner board stock whose properties are covered in **Table 1**.

7. Dimensions, Mass, and Permissible Variations

7.1 The materials covered by this specification are available in the sizes shown in **Table 2**.

7.2 *Length and Width Tolerances*—Unless otherwise specified, the tolerance for length and width of any size panel shall be $+0, -\frac{1}{16}$ in. per ft ($+0, -5.2$ mm/m), but the total tolerance in any dimension shall not exceed $+0, -\frac{3}{8}$ in. ($+0$ mm, -10 mm).

7.3 *Thickness Tolerance*—The thickness tolerances are shown in **Table 3**.

8. Workmanship, Finish, and Appearance

8.1 *Defects*—The insulating board shall have no defects that will adversely affect its service qualities. The surface shall be

free of cracks, lumps, excessive departure from planeness, or other defects that affect performance or appearance.

8.2 *Surface Finish*—The surface finishes of the board shall be as specified in **Table 2**.

8.3 *Edge Details*—The edge details of the board shall be as specified in **Table 2**.

9. Sampling

9.1 Unless otherwise specified in the purchase order or contract, the material shall be sampled in accordance with **Criteria C 390**.

10. Test Methods

10.1 Unless otherwise specified in **Table 1**, determine the properties enumerated in this specification in accordance with **Test Methods C 209**.

11. Inspection and Resubmittal

11.1 The following requirements are generally employed for purposes of acceptance sampling of lots or shipments of qualified material:

11.1.1 Surface finish,

11.1.2 Edge detail,

11.1.3 Dimensional tolerances, and

11.1.4 Workmanship.

11.2 When agreed upon between the purchaser and the manufacturer or supplier, the inspection of the material shall be made at either the point of shipment or point of delivery.

11.3 In case of rejection, the manufacturer or supplier shall have the right to reinspect the rejected shipment and resubmit the lot after removal of the portion of the shipment not conforming to the specified requirements.

12. Product Marking

12.1 When specified, each panel or unit shall be labeled with the manufacturer's name or trademark, the designation of this specification, and type and grade. The label may also include the mark of a third party certification organization.

13. Keywords

13.1 backer board; ceiling tiles and panels; cellulosic fiber insulating board; decorative insulating board; fiberboard; roof deck; roof insulation board; sound deadening board; thermal insulation; wall sheathing