



## Designation: **C728 – 05 (Reapproved 2010) C728 – 13**

# Standard Specification for Perlite Thermal Insulation Board<sup>1</sup>

This standard is issued under the fixed designation C728; 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.

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

## 1. Scope

1.1 This specification covers the composition and physical properties for perlite thermal insulation board used principally above structural roof decks and as a base for built-up, modified, and elastomeric membrane roofing in building construction.

1.2 ~~The use of~~ When adopted by an authority having jurisdiction, codes that address fire properties in many applications regulate the use of the thermal insulation materials covered by this specification may be regulated by building codes or other agencies that address fire performance, or both. The fire performance of the material should be addressed through standard fire test methods established by the appropriate governing documents. specification. Fire properties are controlled by job, project, or other specifications where codes or government regulations do not apply.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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 The following standards, of the issue in effect on the date of material purchase, form a part of this specification to the extent specified herein:

2.2 *ASTM Standards:*<sup>2</sup>

C165 Test Method for Measuring Compressive Properties of Thermal Insulations

C168 Terminology Relating to Thermal Insulation

C177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

C203 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation

C209 Test Methods for Cellulosic Fiber Insulating Board

C390 Practice for Sampling and Acceptance of Thermal Insulation Lots

C518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

C1289 Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

E84 Test Method for Surface Burning Characteristics of Building Materials

## 3. Terminology

3.1 For complete descriptions of terms used in this specification, refer to Terminology C168.

## 4. Classification

4.1 Perlite thermal insulation board is classified as follows:

4.1.1 Type 1, Roof Insulation Board—A perlite based roof insulation cover board.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee C16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.22 on Organic and Nonhomogeneous Inorganic Thermal Insulations.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

4.1.2 ~~Type 1, Roof Insulation 2, Roof Cover or Recover Board~~—~~The This~~  $\frac{1}{2}$  in. (13 mm) thick version of this product is available only is used primarily as a field-applied cover board over other roof insulations or in reroofing applications. The product is also available to manufacturers of laminated rigid foam products as specified in Specification C1289, Type III.

4.1.3 ~~Type 2, Roof Cover/Recover 3, Roof Cover or Recover Board~~—This is used primarily as a field-applied cover board ~~A~~ perlite based cover board that is field applied over other roof insulations or in reroofing applications ~~re-roofing and recover applications~~. The product is also available to manufacturers of laminated rigid foam products as specified in Specification C1289, Type III.

## 5. Ordering Information

5.1 Orders shall at least include the following information:

5.1.1 Title and designation Specification C728.

5.1.2 Product name, nominal thickness and dimensions.

5.1.3 Quantity of material ordered.

5.1.4 Manufacturer's name, address, and telephone number.

## 6. Materials and Manufacture

6.1 *Composition*—The basic material of the insulation board shall be perlite expanded by the application of heat to form glassy, cellular aggregates. The insulation and cover board shall be composed of expanded perlite and fibers formed into rigid, flat, rectangular units with a suitable sizing material incorporated in the product. ~~It may have~~ A facing or coating is potentially present on one or both surfaces a facing or coating to prevent excessive hot bitumen strike-in or adhesive absorption during roofing installation.

6.2 *Lamination*—The finished board ~~may be~~ is either single-ply or multiple-ply. When multiple-ply boards are supplied, a suitable adhesive shall be used to join the plies.

## 7. Physical Properties

7.1 *Thermal Resistance*—Perlite thermal insulation boards and cover shall conform to the following thermal resistances:

Nominal Thickness in. (mm)	Thermal Resistance, F·h·ft <sup>2</sup> /btu (Km <sup>2</sup> /W)		
	Type 1	Type 2	Type 3
$\frac{1}{2}$ (13)	1.4 (0.25)	1.3 (0.23)	1.2 (0.22)
$\frac{3}{4}$ (19)	2.0 (0.35)	...	...
1 (25)	2.7 (0.48)	...	...
1½ (38)	4.1 (0.72)	...	...
2 (51)	5.4 (0.95)	...	...
2½ (64)	6.5 (1.1)	...	...
3 (76)	8.1 (1.4)	...	...

  

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$\frac{1}{2}$ (13)	1.4 (0.25)	1.3 (0.23)	1.2 (0.22)
$\frac{3}{4}$ (19)	2.0 (0.35)	...	...
1 (25)	2.7 (0.48)	...	...
1½ (38)	4.1 (0.72)	...	...
2 (51)	5.4 (0.95)	...	...
2½ (64)	6.5 (1.1)	...	...
3 (76)	8.1 (1.4)	...	...

7.1.1 Nominal thickness is the thickness of insulation required to obtain the desired resistance ~~value and may be more or less than the value~~. It is possible that the nominal thickness will fall outside the thicknesses shown in 7.1. See 8.1 for tolerances.

7.1.2 ~~Insulation~~—It is acceptable for insulation and cover boards having thermal resistances other than those values listed ~~may to~~ be supplied as agreed upon by purchaser and seller.

7.2 The insulation and cover board shall further conform to the physical requirements shown in Table 1.

## 8. Standard Dimensions and Tolerances

8.1 The dimensions and tolerances shall conform to those listed below. ~~Other dimensions may it is acceptable for other dimensions to be supplied as agreed upon by purchaser and seller.~~

Dimensions, in. (mm)	Tolerance, in. (mm)
—Length, 36 (915), 48 (1220), 72 (1830), 96 (2440)	— + ¼ (6)
—Width, 24 (610), 48 (1220)	— ¼ (6)
—Thickness, ½ to 3, (13 to 76), incl	— + ¼ (6)
	— ¼ (6)
	— ± 1/16 (1.6)