



Designation: C1535 – 05 (Reapproved 2023)

Standard Practice for Application of Exterior Insulation and Finish Systems Class PI¹

This standard is issued under the fixed designation C1535; 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 This practice covers the minimum requirements and procedures for field or prefabricated application of Class PI Exterior Insulation and Finish Systems (EIFS). Class PI EIFS are systems applied over polyisocyanurate insulation board, in which the base coat ranges from not less than $\frac{1}{16}$ in. (1.6 mm) to $\frac{1}{4}$ in. (6.4 mm) in dry thickness, depending upon the number of nonmetallic reinforcing mesh layers encapsulated in the base coat. The base coat is then covered with a finish coat of various thickness in a variety of textures and colors. The insulation board shall be applied over a substrate or over open framing.

1.2 This practice does not cover Class PI EIFS with drainage. Consult the EIFS producer for information.

1.3 The values stated in inch-pound units are to be regarded as the standard. The SI (metric) values given in parentheses are approximate and are provided for information purposes only.

1.4 The text of this standard references notes and footnotes that provide explanatory material. These notes and footnotes shall not be considered as requirements of the standard.

1.5 *This standard may involve hazardous materials, operations, and equipment. 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This practice is under the jurisdiction of ASTM Committee C11 on Gypsum and Related Building Materials and Systems and is the direct responsibility of Subcommittee C11.05 on Application of Exterior Insulating and Finish Systems and Related Products.

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2. Referenced Documents

2.1 ASTM Standards:²

- C11 Terminology Relating to Gypsum and Related Building Materials and Systems
- C79/C79M Specification for Gypsum Sheathing Board (Withdrawn 2004)³
- C150 Specification for Portland Cement
- C1063 Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
- C1177/C1177M Specification for Glass Mat Gypsum Substrate for Use as Sheathing
- C1186 Specification for Flat Fiber-Cement Sheets
- C1278/C1278M Specification for Fiber-Reinforced Gypsum Panel
- C1280 Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing
- C1289 Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
- C1325 Specification for Fiber-Mat Reinforced Cementitious Backer Units
- C1382 Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish Systems (EIFS) Joints
- C1472 Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width
- C1481 Guide for Use of Joint Sealants with Exterior Insulation and Finish Systems (EIFS)
- E1825 Guide for Evaluation of Building Exterior Enclosure Materials, Products, and Systems
- E2110 Terminology for Exterior Insulation and Finish Systems (EIFS)

3. Terminology

3.1 Definitions used in this standard shall be in accordance with Terminologies C11 and E2110.

² 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.

³ The last approved version of this historical standard is referenced on www.astm.org.

4. Significance and Use

4.1 This practice provides minimum requirements for the application of Class PI EIFS. The requirements for materials, mixtures, and details shall be contained in the project plans and specifications. See Guide **E1825** for guidance.

5. Delivery of Materials

5.1 All materials shall be delivered in packages, containers, or bundles with the identification and markings intact.

6. Inspection

6.1 Inspection of the materials shall be agreed upon and be a part of the purchase agreement.

6.2 Inspection shall include the determination that the materials supplied are as required for the Class PI EIF System specified. Mixing of materials from different manufacturers is not allowed.

7. Rejection

7.1 Materials that are damaged, frozen or defective shall not be used. Rejection of materials shall be promptly reported verbally to the producer and immediately reported in writing. The notice of rejection shall contain a statement documenting the basis for material rejection.

8. Certification

8.1 When specified in the contract documents, the producer shall furnish a report certifying that the materials are in conformance with product and material standards and contract documents.

8.2 *Insulation Boards:*

8.2.1 Insulation boards shall be in compliance with Specification **C1289**, Type II, Class 2.

8.2.2 Insulation boards shall have been subjected to a third party quality control inspection and shall be marked as approved for use within the EIFS and in accordance with applicable building code.

8.2.3 Prior to installation, the insulation board shall be inspected for conformance with contract documents. Nonconforming insulation board shall not be used.

8.2.4 The insulation board producer shall furnish, for each shipment, a written certificate of conformance with the EIFS producer's specifications.

9. Storage of Materials

9.1 All materials shall be kept dry by storage under cover and protected from the weather. When outside storage is required, materials shall be stacked off the ground, supported on a level platform and protected from the weather, surface contamination or physical damage in accordance with the EIFS producer's written instructions.

9.2 Materials shall be protected from exposure to direct sunlight and temperatures less than 40°F (4°C) unless otherwise specified by the manufacturer.

9.3 Portland Cement shall meet Specification **C150** and shall be kept dry until ready for use. It shall be kept off the ground, under cover and away from damp walls and surfaces.

9.4 Insulation board shall be stacked flat with care taken to avoid damage to edges, ends, or surfaces; or exposure to direct sunlight (ultraviolet radiation).

10. Environmental Conditions

10.1 *Cold Weather Conditions:*

10.1.1 Wet materials shall not be applied when the temperature is less than 40°F (4°C) unless otherwise specified by the manufacturer or unless temporary heat and enclosures are provided to maintain minimum 40°F (4°C) for a minimum period of not less than 24 hours before, during and after application. (See **X1.8.3**)

10.1.2 Materials shall not be applied to a base containing frost. Substrate surface temperature shall be not less than 40°F (4°C). Mixtures for application shall not contain any frozen ingredients.

11. Assessment of Condition of Substrates to Receive Exterior Insulation and Finish Systems

11.1 The substrate shall be as required by the project plans and specifications and as recommended by the EIFS producer for the particular system specified.

11.1.1 Polyisocyanurate boards for use over open framing in conformance with the EIFS producer's specification shall not be less than 1.0 in. (25.4 mm) in thickness.

11.1.2 Polyisocyanurate boards for use over a substrate in conformance with the EIFS producer's specification shall not be less than 5/8 in. (15.9 mm) in thickness.

NOTE 1—Polyisocyanurate board thickness shall conform to building code requirements.

11.2 The substrate shall be inspected by the applicator and general contractor to assure that it meets the project plans and specifications and the requirements of **11.3 – 11.8**.

11.3 Sheathing materials shall be inspected to ensure the following:

11.3.1 The specified sheathing thickness has been installed for the stud spacing used.

11.3.2 Fastener type and fastener spacing are as specified.

11.3.3 All Specification **C79/C79M** gypsum sheathing boards have a water-resistant treated core.

11.3.4 Tongue and groove water-resistant core gypsum sheathing boards conforming to Specification **C79/C79M** are installed with the tongue edge oriented to the top.

11.3.5 Gypsum sheathing shall be installed with the face paper exposed in accordance with Specification **C1280**.

11.3.6 Gypsum sheathing shall be protected from moisture at all penetrations and terminations.

11.3.7 Glass mat gypsum sheathing complying with Specification **C1177/C1177M** shall be installed in accordance with the sheathing producer's written installation instructions, which include details of framing type and spacing, fastener type and spacing, and sheathing orientation and spacing.

11.3.8 Plywood shall be not less than 1/2 in. (12.7 mm) nominal in thickness, exterior or exposure 1 panel sheathing. The plywood shall be installed with a 1/8 in. (3.2 mm) space between sheets at edges and ends.

11.3.9 Fiber-Cement sheets complying with Specification **C1186**, Type A, shall be installed in accordance with the sheet