



Standard Practice for Specimen Preparation and Mounting of Reflective Insulation, Radiant Barrier and Vinyl Stretch Ceiling Materials for Building Applications to Assess Surface Burning Characteristics¹

This standard is issued under the fixed designation E2599; 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.

1. Scope

1.1 This practice describes a procedure for specimen preparation and mounting when testing reflective insulation, radiant barrier and vinyl stretch ceiling materials to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice is for reflective insulation materials and radiant barrier materials intended for mechanical fastening to substrates or building structural members, or intended to be mounted to a substrate with an adhesive.

1.3 Specimens of reflective insulation materials and radiant barrier materials intended for mechanical fastening shall be prepared and mounted in accordance with 6.1. Specimens of reflective insulation materials and radiant barrier materials intended to be mounted to a substrate with an adhesive shall be prepared and mounted in accordance with 6.2. If the reflective insulation material or sheet radiant barrier material includes manufacturer recommended installation instructions with the option to be installed either by mechanical attachment or adhered, the insulation material shall be tested by both mounting procedures as outlined in 6.1 and 6.2.

1.4 Specimens of vinyl stretch ceiling materials shall be prepared and mounted in accordance with 6.1.

NOTE 1—Vinyl stretch ceiling materials are mechanically fastened.

1.5 This practice shall apply to reflective insulation materials and radiant barrier materials as defined in Section 3.

1.6 This practice shall apply to reflective plastic core insulation materials as defined in 3.2.3. Reflective plastic core insulation materials are one specific type of reflective insulation materials.

1.7 This practice shall apply to vinyl stretch ceiling materials as defined in Section 3.

1.8 This practice shall not apply to rigid foam plastics with or without reflective facers.

1.9 This practice shall not apply to site-fabricated stretch systems covered by Practice E2573.

1.10 Testing is conducted in accordance with Test Method E84.

1.11 This practice does not provide pass/fail criteria that can be used as a regulatory tool.

1.12 Use the values stated in inch-pound units as the standard in referee decisions. The values in the SI system of units are given in parentheses, for information only; see IEEE/ASTM SI-10 for further details.

1.13 This fire standard cannot be used to provide quantitative measures.

1.14 Fire testing of products and materials is inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting these tests. Fire testing involves hazardous materials, operations and equipment. This practice gives instructions on specimen preparation and mounting but the fire-test-response method is given in Test Method E84. See also Section 8.

1.15 The text of this practice references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered requirements of the standard.

¹ This practice is under the jurisdiction of ASTM Committee E05 on Fire Standards and is the direct responsibility of Subcommittee E05.22 on Surface Burning. Current edition approved April 1, 2015/July 1, 2016. Published May 2015/August 2016. Originally approved in 2009. Last previous edition approved in 2014 as E2599-14/E2599-15. DOI: 10.1520/E2599-15:10.1520/E2599-16.

1.16 *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:²

C168 Terminology Relating to Thermal Insulation

C1224 Specification for Reflective Insulation for Building Applications

C1313 Specification for Sheet Radiant Barriers for Building Construction Applications

E84 Test Method for Surface Burning Characteristics of Building Materials

E176 Terminology of Fire Standards

E2231 Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess Surface Burning Characteristics

E2573 Practice for Specimen Preparation and Mounting of Site-Fabricated Stretch Systems to Assess Surface Burning Characteristics

IEEE/ASTM SI-10 International System of Units (SI): The Modern Metric System

3. Terminology

3.1 *Definitions:* For definitions of terms used in this practice and associated with fire issues, refer to the terminology contained in Terminologies **E176**. For definitions of terms used in this practice and associated with thermal insulation issues refer to Terminology **C168**.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *radiant barrier, n*—a low emittance (0.1 or less) surface used in the construction of a radiant barrier system.

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.

3.2.1.1 Discussion—

Radiant barrier materials are defined in Specification **C1313**.

3.2.2 *reflective insulation, n*—thermal insulation consisting of one or more low emittance surfaces bounding one or more enclosed air spaces.

3.2.2.1 Discussion—

Reflective insulation materials are defined in Specification **C1224**.

3.2.3 *reflective plastic core insulation, n*—an insulation material packaged in rolls, that is less than 0.5 in. (12.7 mm) thick, with at least one exterior low emittance surface (0.1 or less) and a core material containing voids or cells.

3.2.3.1 Discussion—

Reflective plastic core insulation materials are one specific type of reflective insulation materials.

3.2.4 *site-fabricated stretch system, n*—a system, fabricated on site and intended for acoustical, tackable or aesthetic purposes, that is comprised of three elements: (a) a frame (constructed of plastic, wood, metal or other material) used to hold fabric in place, (b) a core material (infill, with the correct properties for the application), and (c) an outside layer, comprised of a textile, fabric or vinyl, that is stretched taut and held in place by tension or mechanical fasteners via the frame.

3.2.5 *vinyl stretch ceiling material, n*—a vinyl material stretched and mechanically fastened to a noncombustible frame and intended to be used as a suspended ceiling without associated backing material.

4. Summary of Practice

4.1 This practice describes a procedure for specimen preparation and mounting when testing reflective insulation, radiant barrier and vinyl stretch ceiling materials to assess flame spread and smoke development as surface burning characteristics using Test Method **E84**.

4.2 Reflective insulation materials and radiant barrier materials intended for mechanical fastening to substrates or building structural members, or intended to be mounted to a substrate with an adhesive shall be tested in accordance with the specimen preparation and mounting procedures described in this practice, using Test Method **E84**.