



# Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using an Electric Radiant Heat Energy Source<sup>1</sup>

This standard is issued under the fixed designation C1485; 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.

## 1. Scope

1.1 This test method covers a procedure for measuring the critical radiant flux of exposed attic floor insulation subjected to a flaming ignition source in a graded radiant heat energy environment inside a test chamber. The test specimen can be any attic floor insulation. This test method is not applicable to those insulations that melt or shrink away when exposed to the radiant heat energy environment or the ignition source.

1.2 This test method measures the critical radiant flux at the farthest point to which the flame advances. It provides a means for relative classification of a fire test response standard for exposed attic floor insulation. The imposed radiant flux simulation levels of thermal radiation are likely to impinge on the surface of exposed attic insulation from roof assemblies heated by the sun and by heat or flames of an incidental fire which has the potential to involve an attic space. This test method is intended to simulate an important element of fire exposure that has the potential to develop in open attics, but is not intended for use in describing flame spread behavior of insulation installed other than on an attic floor.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.4 This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire hazard or fire risk assessment of the material, products, or assemblies under actual fire conditions.

1.5 **Warning**—Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.

1.6 *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 appro-*

*priate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

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

**C168 Terminology Relating to Thermal Insulation**

**E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method**

2.2 *ASTM Adjuncts*:

CRF (Critical Radiant Flux) Calibration Form<sup>3</sup>

## 3. Terminology

3.1 *Definitions*:

3.1.1 For definitions of terms used in this specification, see Terminology **C168**.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *critical radiant flux (CRF)*—the level of incident radiant heat energy on the attic floor insulation system at the most distant flame-out point in W/cm.<sup>2</sup> (Btu/ft<sup>2</sup>s).

3.2.2 *flux profile*—the curve relating incident radiant heat energy on the specimen plane to distance from the point of initiation of flaming ignition, that is, 0.0 cm. (0.0 in.).

3.2.3 *graded radiant energy*—the heating element is placed on an angled plain.

3.2.4 *total flux meter*—the instrument used to measure the level of radiant heat energy incident on the specimen plane at a given point.

3.2.5 *screed*—gently remove the excess material using a metal straight edge to leave a uniform surface on the insulation flush with the top of the container.

## 4. Summary of Test Method

4.1 A horizontally mounted insulation specimen is exposed to the heat from an electric radiant heat energy panel located above and inclined at 30° to the specimen. After a short

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee **C16** on Thermal Insulation and is the direct responsibility of Subcommittee **C16.31** on Chemical and Physical Properties.

Current edition approved March 1, 2013. Published March 2013. Originally approved in 2001. Last previous edition approved in 2006 as C1485-06. DOI: 10.1520/C1485-13.

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

<sup>3</sup> Available from ASTM International Headquarters. Order Adjunct No. **ADJC1485**. Original adjunct produced in 2006.