



# Practice for Specimen Preparation of Fenestration Profiles Intended to Support Non-Combustible In-Fill Materials to Assess Surface Burning Characteristics<sup>1</sup>

This standard is issued under the fixed designation E3287; 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 practice describes procedures for specimen preparation and mounting when testing fenestration profiles to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies to lengths of fenestration profiles only, intended for in-fill no less than 8 in. wide.

1.2.1 This practice does not apply to ancillary materials such as combustible in-fill, reinforcement, hardware, accessories, sealants, or weather-stripping

1.3 This practice presents two ways of testing fenestration profiles; either as profile lengths or as sheets of materials representing the profile.

1.4 Testing shall be conducted with Test Method E84.

1.5 This practice gives instructions on specimen preparation and mounting, but the fire-test-response method is given in Test Method E84. See also Section 1.9 of Test Method E84 for information on operator safety.

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

1.7 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.

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

1.9 *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.*

1.10 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.

1.11 *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.*

1.12 *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.*

## 2. Referenced Documents

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

E84 Test Method for Surface Burning Characteristics of Building Materials

E176 Terminology of Fire Standards

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

2.2 *AAMA Standard:*<sup>3</sup>

AAMA AG-13 Glossary

## 3. Terminology

3.1 For definitions of terms used in this practice and associated with fire issues refer to Terminology E176.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *fenestration profile, n*—a profile is the cross-sectional geometry of a frame, sash or its components.

3.2.1.1 *Discussion*—The fenestration product is mounted within the building envelope.

<sup>1</sup> 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.

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<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 American Architectural Manufacturers Association (AAMA), [www.aamanet.org](http://www.aamanet.org).

3.2.2 *flame spread index, n*—a comparative measure expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time in Test Method E84 (Terminology E176).

3.2.3 *frame, n*—the enclosing structure of a window, door, tubular daylighting device, roof window, secondary storm products, or unit skylight which fits into or attaches to the wall or roof opening and received either glazing, sash, panels, leaves, or vents.

3.2.4 *hardware, n*—all the equipment necessary to retain, operate, and lock or unlock the sash, leaf, or panel within the frame.

3.2.5 *in-fill, n*—any material glazed into a framing system.

3.2.6 *lite, n*—a pane of glass or an insulating glass unit used in windows, doors, tubular daylighting devices, roof windows, secondary storm products or unit skylights.

3.2.6.1 *Discussion*—Fenestration profile materials are used to support the lite non-combustible in-fill material.

3.2.7 *sealant, n*—a compound used to fill and seal a joint or opening.

3.2.8 *self-supporting specimen, n*—a specimen that remains in place by its own structural characteristics both before and during the fire test.

3.2.9 *smoke developed index, n*—a comparative measure expressed as a dimensionless number, derived from measurements of smoke obscuration versus time in Test Method E84. (Terminology E176).

3.3 AAMA Glossary AG-13 provides useful added guidance.

## 4. Summary of Practice

4.1 This practice describes procedures for specimen preparation and mounting when testing fenestration profiles to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

## 5. Significance and Use

5.1 Fenestration products are often evaluated with Test Method E84 to comply with building or life safety code requirements. This practice describes specimen preparation and mounting procedures for such materials and systems.

5.2 The limitations for this procedure are those associated with Test Method E84.

## 6. Conditioning

6.1 The test specimens shall be conditioned as described in the section on specimen conditioning in Test Method E84.

## 7. Specimen Preparation and Mounting

7.1 *General*—Fenestration profiles shall be mounted either as flat sheets (7.2), or as fenestration profile lengths (7.3).

7.2 When fenestration profiles are being tested as sheets, the test specimens shall be prepared from the fenestration profile material and shall be mounted in accordance with section 6.3 of Test Method E84 at the maximum material thickness.

7.2.1 Profile sheets that are not self-supporting specimens and will not remain in place during the test shall be supported in accordance with Annex A4 of Test Method E84.

7.3 When fenestration profiles are being tested as manufactured lengths, the test specimens shall be representative of the heaviest and largest fenestration profile material representing a family or series.

7.3.1 For fenestration profiles intended for fixed lites, the test specimens shall consist of profile lengths installed end-to-end to comprise two lengths,  $24.5 \pm 0.5$  ft ( $7.47 \pm 0.152$  m) long, of the profile material, installed 8 in. (203.2 mm) on center, so that they align with the centerline of the burner nozzles.

7.3.2 For fenestration profiles intended for operable units, one length of jamb and one length of sash shall be spaced 8 in. (203.2 mm) on center so that they align with the centerline of the burner nozzles.

7.3.3 Each fenestration profile shall be dimensionally representative, in shape, wall thickness, form and construction, of product supplied for use in the field. The profiles shall be oriented such that the largest width (that is, the one with the most material) faces the bottom of the tunnel. The specimens shall be centered so that they align on the center line of the burner nozzles.

7.3.4 The fenestration profiles lengths shall be mounted using metal supports as described in Annex A4 of Test Method E84.

## 8. Testing of Specimens

8.1 All testing shall be conducted using the procedure described in Test Method E84.

## 9. Operator Safety

9.1 The primary concerns for operator safety are associated with the fire-test-response procedure, which is described in Test Method E84, and not with the specimen preparation procedure. Safety recommendations are included in Test Method E84.

## 10. Report

10.1 Report the following within the Test Method E84 test report:

10.1.1 A detailed description of the product being tested. Include all properties required for adequate identification of the materials or ingredients, or both, of which the test specimen is made. Include also the material of manufacture of the lites,

10.1.2 A detailed description of the specimen preparation and mounting method used, per Section 7,

10.1.3 Whether flat sheets or as-manufactured fenestration profiles were tested,

10.1.4 The material thickness of flat sheets or profiles used for each test, and

10.1.5 If as-manufactured fenestration profiles were tested, a detailed description of the system.

10.1.6 Report all the information required in the reporting section of Test Method E84, including all observations, graphical results and the values of the flame spread index and of the smoke developed index in each test.