Designation: E2690 – 17a

An American National Standard

Standard Practice for Specimen Preparation and Mounting of Caulks and Sealants to Assess Surface Burning Characteristics[1]

This standard is issued under the fixed designation E2690; 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 describes procedures for specimen preparation and mounting when testing caulks and sealants to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.1.1 Caulks and sealants up to 8 in. (203.2 mm) in width shall follow the requirements of 7.1.

1.1.2 Caulks and sealants in excess of 8 in. (203.2 mm) in width shall follow the requirements of 7.2.

1.2 This practice applies to caulks and sealants intended for various uses within buildings. The caulks and sealants addressed in this practice are not able to be supported by their own structural characteristics during the test.

1.2.1 This practice does not apply to adhesives that are used to adhere or bind together surfaces.

1.3 Testing is conducted in accordance with Test Method E84.

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

1.5 This practice does not apply to materials for which the test specimen does not remain in place before and during the test until maximum flame propagation has occurred.

1.6 This practice is not for system evaluation. It is for the comparison of the materials only.

1.7 The results obtained by using this mounting procedure are confined to the materials themselves as tested and are not comparable to those obtained with materials that are tested in a full tunnel width application.

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

1.9 Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.

1.10 This standard gives instructions on specimen preparation and mounting, but the fire-test-response method is given in Test Method E84. See also Section 9.

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

1.12 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.

1.13 *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.*

1.14 *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:*[2]

C717 Terminology of Building Seals and Sealants

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

3. Terminology

3.1 *Definitions*—For definitions of terms used in this practice associated with fire issues, refer to the terminology contained in Terminology E176. For definitions of terms used in this practice associated with caulks and sealants refer to the terminology contained in Terminology C717.

[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 July 1, 2017. Published July 2017. Originally approved in 2010. Last previous edition approved in 2017 as E2690–17. DOI: 10.1520/E2690–17A.

[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 *Definitions of Terms Specific to This Standard:*

3.2.1 *bead, n—in building construction*, a strip of applied sealant, glazing compound or putty.

3.2.2 *sealant, n—in building construction*, a material that has the adhesive and cohesive properties to form a seal.

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

4. Summary of Practice

4.1 This practice describes procedures for specimen preparation and mounting when testing caulks and sealants up to and including 8 in. (203.2 mm) in width to assess flame spread index and smoke developed index as surface burning characteristics using Test Method E84. Caulks and sealants in excess of 8 in. (203.2 mm) are to be tested in full coverage as applied to fiber cement board as described in Test Method E84.

4.2 This practice applies only to caulks and sealants from which it is possible to develop specimens that when applied to the substrate are self-supporting by their own structural characteristics.

4.3 The caulks and sealants addressed in this practice shall be tested in accordance with the specimen preparation and mounting procedures described in this practice, using Test Method E84.

5. Significance and Use

5.1 Building products made with caulks and sealants are often used for applications for which Test Method E84 is used for compliance with building code, life safety code or mechanical code requirements. This practice describes, in detail, specimen mounting procedures for those caulks and sealants which are not able to be supported by their own structural characteristics during the test.

5.2 Codes are often silent with regard to testing caulks and sealants for the assessment of flame spread index and smoke developed index as surface burning characteristics. This practice describes specimen preparation and mounting procedures for such materials and products.

5.3 The material shall be representative of the materials used in actual field installations.

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

6. Conditioning

6.1 Following application to the substrate, the specimens used for testing shall be conditioned as described in the section on specimen conditioning in Test Method E84.

7. Specimen Preparation and Mounting

7.1 *Caulks and Sealants up to 8 in. (203.2 mm) in width:*

7.1.1 Specimens shall consist of two 24.5 ± 0.5 ft (7.47 ± 0.15 m) long beads or strips of sealant or caulk installed 8 in. (203.2 mm) on center down the center of the tunnel. The beads or strips shall be at the maximum width or diameter recommended for use by the manufacturer, but shall not be less than ⅜ in. (9.5 mm).

7.1.2 The specimens shall be centered so that they align on the center line of the burner nozzles. See Fig. 1.

7.1.3 The caulk or sealant shall be applied directly to a fiber-cement board.

7.1.4 Caulks and sealants shall be cured per manufacturer's instructions prior to conditioning as specified in 6.1.

7.2 *Caulks and Sealants in Excess of 8 in. (203.2 mm) in width:*

7.2.1 Determine the surface burning characteristics of caulks and sealants intended to be applied at over 8 in. (203.2 mm) in width by using the procedure outlined below.

7.2.1.1 The test specimen preparation shall be as follows. All steps shall be completed as specified in the manufacturer's instructions.

7.2.1.2 Mix the caulk or sealant, if applicable.

7.2.1.3 Apply the caulk or sealant to fiber-cement board, across the entire width of the fiber cement board up the ledges, in the thickness or at the coverage rate specified in the manufacturer's instructions.

7.2.1.4 Cure the caulk or sealant prior to testing.

7.2.1.5 The test specimen shall comply with the requirements of Section 6 of Test Method E84 and cover the full width of the tunnel.

8. Testing of Specimens

8.1 Testing shall be conducted using the methodology described in Test Method E84.

9. Operator Safety

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

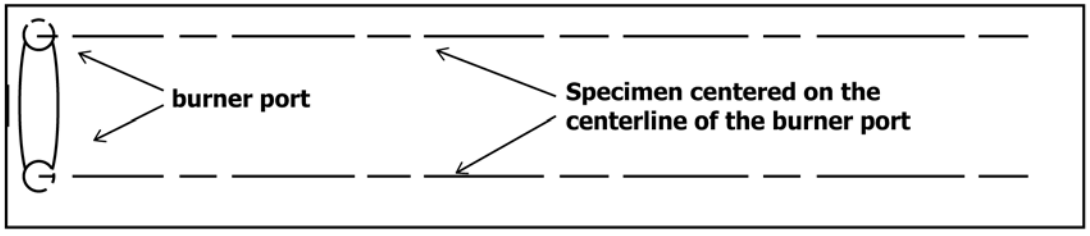

FIG. 1 Schematic of Specimen Placement

10. Report

10.1 Report a detailed description of the specimen being tested.

10.2 Report a detailed description of the specimen preparation method used, per Section 7.

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

11. Keywords

11.1 caulk; fire; fire test; flame spread; plastic; sealants; smoke developed