

ASTM E84 - 18

Standard Test Method for Surface Burning Characteristics of Building Materials

1. Scope

1.1 This fire-test–response standard for the comparative surface burning behavior of building materials is applicable to exposed surfaces such as walls and ceilings. The test is conducted with the specimen in the ceiling position with the surface to be evaluated exposed face down to the ignition source. The material, product, or assembly shall be capable of being mounted in the test position during the test. Thus, the specimen shall either be self-supporting by its own structural quality, held in place by added supports along the test surface, or secured from the back side.

1.2 The purpose of this test method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke developed index are reported. However, there is not necessarily a relationship between these two measurements.

1.3 The use of supporting materials on the underside of the test specimen has the ability to lower the flame spread index from those which might be obtained if the specimen could be tested without such support. These test results do not necessarily relate to indices obtained by testing materials without such support.

1.4 Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place.

1.5 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.

1.6 The text of this standard references notes and footnotes that provide explanatory information. These notes and footnotes, excluding those in tables and figures, shall not be considered as requirements of the standard.

1.7 *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 materials, products, or assemblies under actual fire conditions.*

1.8 *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.*

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

1.10 *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 *(purchase separately)* ⓘ

ASTM Standards

[A390](#) Specification for Zinc-Coated (Galvanized) Steel Poultry Fence Fabric (Hexagonal and Straight Line)

[C1186](#) Specification for Flat Fiber-Cement Sheets

[C1288](#) Specification for Fiber-Cement Interior Substrate Sheets

[C1396/C1396M](#) Specification for Gypsum Board

[D4442](#) Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials

[D4444](#) Test Method for Laboratory Standardization and Calibration of Hand-Held Moisture Meters

[E69](#) Test Method for Combustible Properties of Treated Wood by the Fire-Tube Apparatus

[E160](#) Test Method for Combustible Properties of Treated Wood by the Crib Test 3

[E162](#) Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source

[E176](#) Terminology of Fire Standards

[E286](#) Test Method for Surface Flammability of Building Materials Using an 8-ft (2.44-m) Tunnel Furnace

[E2231](#) Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess Surface Burning Characteristics

[E2404](#) Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) and Wood Wall or Ceiling Coverings, Facings and Veneers, to Assess Surface Burning Characteristics

[E2573](#) Practice for Specimen Preparation and Mounting of Site-Fabricated Stretch Systems to Assess Surface Burning Characteristics

[E2579](#) Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning Characteristics

[E2599](#) Practice for Specimen Preparation and Mounting of Reflective Insulation, Radiant Barrier and Vinyl Stretch Ceiling Materials for Building Applications to Assess Surface Burning Characteristics

[E2688](#) Practice for Specimen Preparation and Mounting of Tapes to Assess Surface Burning Characteristics

[E2690](#) Practice for Specimen Preparation and Mounting of Caulks and Sealants to Assess Surface Burning Characteristics

[E2768](#) Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)

[E2988](#) Practice for Specimen Preparation and Mounting of Flexible Fibrous Glass Insulation for Metal Buildings to Assess Surface Burning Characteristics

[E3202](#) Practice for Specimen Preparation and Mounting of Plastic Composites for Use as Deck Boards, Stair Treads, Guards or Handrails to Assess Surface Burning Characteristics

NFPA Standards

NFPA 262

Keywords

Air Pollution - Building Products - Ceilings - Combustion Properties - Fire Test - Flame Spread - Flammability - Testing Instruments

ICS Code

ICS Number Code 13.220.50 (Fire-resistance of building materials and elements);
91.100.01 (Construction materials)

UNSPSC Code

UNSPSC Code 30130000(Structural building products)