



Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure¹

This standard is issued under the fixed designation E2707; 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 fire-test-response standard prescribes a method to assess the fire performance of a vertically oriented specimen exposed to direct flame impingement in a simulated external fire exposure potentially encountered in a ‘Wildland Urban Interface’ scenario. This test method provides data suitable for comparing the performance of materials, which are used as the exposed surfaces of exterior walls in construction applications.

NOTE 1—This test method closely follows the test procedure of California Office of State Marshal (SFM) Method 12-7A-1.²

1.2 This test method measures the ability of the wall system to resist fire penetration from the exterior into the wall cavity or unexposed side of the test assembly under the conditions of exposure.

1.3 This test method provides data suitable for comparing the performance of vertically oriented materials, products or assemblies in exterior construction applications. The test specimen shall be tested in thicknesses and configurations representative of actual end product or system uses.

1.4 Limitations of the test method are listed in Section 5.5.

1.5 The system of units to be used in referee decisions is the SI system of units; see [IEEE/ASTM SI-10](#) for further details. The units given in parentheses are for information only.

1.6 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.

1.7 *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.

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

2. Referenced Documents

2.1 ASTM Standards:³

- [D2898 Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing](#)
- [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](#)
- [D6662 Specification for Polyolefin-Based Plastic Lumber Decking Boards](#)
- [D7032 Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems \(Guards or Handrails\)](#)
- [E176 Terminology of Fire Standards](#)
- [E1354 Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter](#)
- [E1474 Test Method for Determining the Heat Release Rate of Upholstered Furniture and Mattress Components or Composites Using a Bench Scale Oxygen Consumption Calorimeter](#)
- [E1740 Test Method for Determining the Heat Release Rate and Other Fire-Test-Response Characteristics of Wall Covering or Ceiling Covering Composites Using a Cone Calorimeter](#)
- [E2102 Test Method for Measurement of Mass Loss and Ignitability for Screening Purposes Using a Conical Radiant Heater](#)
- [E2257 Test Method for Room Fire Test of Wall and Ceiling Materials and Assemblies](#)
- [E2886 Test Method for Evaluating the Ability of Exterior](#)

¹ This test method is under the jurisdiction of ASTM Committee E05 on Fire Standards and is the direct responsibility of Subcommittee E05.14 on External Fire Exposures.

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² 2007 California Building Code, Chapter 7A [SFM], Materials and Construction Methods for Exterior Wildfire Exposure, Exterior Wall Siding and Sheathing, SFM Standard 12-7A-1.

³ 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.