



Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover¹

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This standard has been approved for use by agencies of the Department of Defense.

^{ε1} NOTE—Units information was editorially corrected in May 2013.

1. Scope

1.1 These test methods² cover the determination of the properties of flexible membranes to be used as vapor retarders in contact with earth under concrete slabs, against walls, or as ground cover in crawl spaces. The test methods are applicable primarily to plastic films and other flexible sheets. The materials are not intended to be subjected to sustained hydrostatic pressure. The procedures simulate conditions to which vapor retarders may be subjected prior to and during installation, and in service.

1.2 The test methods included are:

	Section
Water-Vapor Transmission of Material as Received	7
Water-Vapor Transmission after Wetting and Drying and after Long-Time Soaking	8
Tensile Strength	9
Resistance to Puncture	10
Resistance to Plastic Flow and Elevated Temperature	11
Effect of Low Temperatures on Flexibility	12
Resistance to Deterioration from Organisms and Substances in Contacting Soil	13
Resistance to Deterioration from Petroleum Vehicles for Soil Poisons	14
Resistance to Deterioration from Exposure to Ultraviolet Light	15
Resistance to Flame Spread	16
Report	17

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the*

¹ These test methods are under the jurisdiction of ASTM Committee E06 on Performance of Buildings and are the direct responsibility of Subcommittee E06.21 on Serviceability.

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² Some of these test methods were based originally on *Report No. 2040*, U.S. Forest Products Laboratory, and “Vapor Barrier Materials for Use with Slab-On-Ground Construction and as Ground Covers in Crawl Spaces,” *Publication 445-1956*, Building Research Advisory Board (currently out-of-print).

responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:³

- C168 Terminology Relating to Thermal Insulation
- C755 Practice for Selection of Water Vapor Retarders for Thermal Insulation
- D828 Test Method for Tensile Properties of Paper and Paperboard Using Constant-Rate-of-Elongation Apparatus (Withdrawn 2009)⁴
- D882 Test Method for Tensile Properties of Thin Plastic Sheeting
- D1709 Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method
- D1985 Practice for Preparing Concrete Blocks for Testing Sealants, for Joints and Cracks
- D2565 Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications
- D4397 Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
- E84 Test Method for Surface Burning Characteristics of Building Materials
- E96/E96M Test Methods for Water Vapor Transmission of Materials
- E241 Guide for Limiting Water-Induced Damage to Buildings
- E437 Specification for Industrial Wire Cloth and Screens (Square Opening Series) (Discontinued 2000) Replaced by E 2016 (Withdrawn 2000)⁴
- E631 Terminology of Building Constructions

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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.