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An American National Standard

Standard Specification for Bituminous Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs[1]

This standard is issued under the fixed designation E 1993; 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 specification covers bituminous water vapor retarders for use in contact or granular fill under concrete slabs.

1.2 The specified tests are conducted on new materials and materials that have been conditioned or exposed to simulate potential service conditions.

2. Referenced Documents

2.1 *ASTM Standards:*

C 168 Terminology Relating to Thermal Insulating Materials[2]

D 828 Test Method for Tensile Breaking Strength of Paper and Paperboard[3]

D 1790 Test Methods for Brittleness Temperature of Plastic Sheeting by Impact[4]

D 1985 Practice for Preparing Concrete Blocks for Testing Sealants for Joints and Crack Fillers[5]

D 5147 Test Methods for Sampling and Testing Modified Bituminous Sheet Material[6]

E 96 Test Methods for Water Vapor Transmission of Materials[2]

E 154 Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs or Walls or as Ground Cover[7]

E 631 Terminology for Building Constructions[7]

3. Terminology

3.1 *Definitions*:

3.1.1 For definitions of terms used in this specification, see Terminologies C 168 and E 631.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *perm*, *n*—the time rate of water vapor migration through a material or a construction of one grain per hour, square foot, inch of mercury pressure difference.

3.2.1.1 *Discussion*—If a specification states that a one perm limit is required, the same flow rate will be obtained from the following relationships[8]:

1 perm	= 1 grain/(h · ft^2· in Hg)	inch pound
	= 57.2 10^{-12} kg/(Pa · s · m^2)	SI Fundamental Units
	= 57.2 ng/(Pa · s · m^2)	SI Frequently Used
	= 0.66 g/24h · m^2· mm Hg	SI has been used but is now obsolete

3.2.2 *vapor retarded*, *n*—(formally vapor barrier) a material or construction that impedes the transmission of water vapor under specified conditions.

3.2.3 *water vapor permeability*, *n*—a property of material which is water vapor permeance through unit thickness. Since materials that provide resistance to vapor flow are never used in unit thickness, the evaluation of both materials and constructions used herein is permeance.

4. Sampling

4.1 Each sampling shall consist of sufficient material to provide at least five specimens for the tests listed in Section 7.

5. Specifying Information

5.1 Specification for materials shall include the following:

5.1.1 This specification number, and

5.1.2 Performance requirements, if any, for special conditions (see 7.6).

6. Lap Sealing

6.1 This producer shall provide supplier/seller/installer with instructions for lap sealing, including minimum width of lap, method of sealing, and shall either supply or recommend specified suitable products for lap sealing.

7. Properties

7.1 The bituminous membrane water vapor retarder shall consist of asphaltic materials reinforced with multiple plies of suitable fabric. The bituminous vapor retarder shall meet the requirements listed in Table 1 as well as those outlined below.

7.2 *Permeance*—Material, including lap seals, shall conform to the requirements listed in Table 1 under the following conditions when tested according to Test Methods E 154,

[1] This specification is under the jurisdiction of ASTM Committee E-6 on Performance of Building Constructions and are the direct responsibility of Subcommittee 06.21 on Serviceability.

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[2] *Annual Book of ASTM Standards*, Vol 04.06.

[3] *Annual Book of ASTM Standards*, Vol 15.09.

[4] *Annual Book of ASTM Standards*, Vol 08.01.

[5] *Annual Book of ASTM Standards*, Vol 04.03.

[6] *Annual Book of ASTM Standards*, Vol 04.04.

[7] *Annual Book of ASTM Standards*, Vol 04.11.

[8] See 3.2.3 of Test Method E 154. This conversion is based on a temperature of 0°C (32°F) and not on an environmental temperature of 23°C (73.4°F).