Designation: D 6381 – 03b

Standard Test Method for Measurement of Asphalt Shingle Mechanical Uplift Resistance[1]

This standard is issued under the fixed designation D 6381; 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 test method covers measuring the uplift resistance of asphalt roofing shingles by mechanical means. It is applicable to shingles that use a factory-applied or field-applied sealant.

1.2 There are several types of shingles designed for service without a factory-applied or field-applied sealant. These shingles, when applied in accordance with the manufacturers' application instructions, employ other means to provide resistance against the forces generated by the action of wind such as geometry and shingle construction. Field experience has shown that these types of shingles function satisfactorily in service. Because there are a variety of these shingle designs, it is not practical to describe in this test method how to test these shingles for uplift resistance. The testing of these types of shingles, therefore, goes beyond the scope of this test method.

1.3 This test method describes two procedures for measuring shingle uplift resistance. Procedure A employs a specially designed apparatus with a clamping device which facilitates lifting of the edge of the shingle and measuring the force required to break the seal. Procedure B employs a metal "T" section adhered to the weather surface of the shingle to facilitate application and measurement of a perpendicular force to break the seal.

1.4 It is not prohibited to use this test method over a range of sealing time and temperature combinations and testing temperatures to simulate a variety of actual field use conditions. The times and temperatures used shall be stated in the report.

1.5 The values stated in SI units are to be regarded as the standard. The inch-pound values given in parentheses are for information only.

1.6 *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.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 228 Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing

D 1079 Terminology Relating to Roofing, Waterproofing, and Bituminous Materials

D 3462 Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules

3. Terminology

3.1 *Definitions*—For definition of terms used in this test method, refer to Terminology D 1079.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *seal—as it relates to steep roofing shingles*, is the bonding that results from the activation of the sealant under the action of time and temperature.

3.2.2 *sealant—as it relates to steep roofing shingles*, is defined as factory-applied or field-applied material designed to seal the shingles to each other under the action of time and temperature after the shingles are applied to a roof.

3.2.3 *sealed—as it relates to steep roofing shingles*, is the condition of the shingles after the sealant has been activated by the action of time and temperature.

4. Summary of Test Method

4.1 The test specimens are constructed from pieces of shingles, overlaid and sealed prior to testing. All specimens are then conditioned and tested at selected temperatures. Specimens are tested in Procedure A by lifting the exposed edge and recording the uplift force required to break the seal, and in Procedure B, by recording the perpendicular force required to break the seal.

5. Significance and Use

5.1 Uplift resistance is one of the properties of an applied shingle that relates to its ability to withstand wind forces. The mechanical tests described are laboratory methods to measure

[1] This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.02 on Prepared Roofings, Shingles and Siding Materials.

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[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.

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