



Designation: D7105/D7105M – 06 (Reapproved 2019)^{ε1}

Standard Test Method for Determining the Adhesive and Cohesive Strength Between Materials in Roofing or Waterproofing Membranes and Systems¹

This standard is issued under the fixed designation D7105/D7105M; 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.

^{ε1} NOTE—Units information was editorially corrected in May 2019.

1. Scope

1.1 This test method measures the force needed to cause separation of the components of a roofing or a waterproofing membrane system normal (perpendicular) to the plane of the membrane. The separation may be adhesive at the weakest bond, or cohesive within the weakest material. If the failure is cohesive, the adhesive strength is greater than the cohesive strength.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.3 *The 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.*

1.4 *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

2.1 *ASTM Standards:*²

D312/D312M Specification for Asphalt Used in Roofing

¹ This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.20 on Roofing Membrane Systems.

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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.

[D1079 Terminology Relating to Roofing and Waterproofing](#)

3. Terminology

3.1 *Definitions:*

3.1.1 See **D1079** for definitions of terms used in this test method.

4. Summary of Test Method

4.1 This test method subjects specimens from the laboratory prepared or field samples to a force perpendicular to the plane of the membrane. The test measures:

4.1.1 The cohesive strength of an adhesive layer when separation takes place within the adhesive layer,

4.1.2 The adhesive strength when the separation takes place at an adhered surface, or

4.1.3 The cohesive strength of the weakest material when the separation takes place within a material other than an adhesive.

5. Significance and Use

5.1 This test method is useful to define the force needed to cause separation of the roofing or waterproofing system or components perpendicular to the plane of the system, and to define the weakest plane in the system.

6. Apparatus

6.1 *Testing Machine*—A universal testing machine with automatic load and strain equipment and a constant speed cross head movement of 0.8 mm/s [2 in./min.] $\pm 1\%$.

6.2 *Mounting Clips*—The specimen mounting clips (for small specimens) are 50 mm [2 in.] square perforated galvanized steel, 0.5 mm [0.020 in.] thick, with at least a 75 mm [3 in.] long steel pin 2.7 mm [12 gauge] diameter. The pin shall be fastened to the center of the plate perpendicular to the plane of the plate.

6.3 *Mounting Blocks*—The wood or metal specimen blocks (for larger specimens) are 150 mm [6 in.] square and 13 to 32 mm [$\frac{1}{2}$ to 1- $\frac{1}{4}$ in.] thick (depending on the force to be