



Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing¹

This standard is issued under the fixed designation D6757/D6757M; 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 (1) inorganic fiber-reinforced organic felt underlayment and (2) inorganic fiber-based felt for use as underlayment with steep-slope roofing products. The intent of this specification is to provide criteria for producing and evaluating underlayments with a significantly reduced tendency to wrinkle before or after the installation of steep roofing products.

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 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.

1.3 The following safety hazards caveat pertains only to the test method portion, Section 8, of this specification: *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 requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D146/D146M Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing

D228/D228M Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing

D1079 Terminology Relating to Roofing and Waterproofing

D4869/D4869M Specification for Asphalt-Saturated Or-

ganic Felt Underlayment Used in Steep Slope Roofing
F1087 Test Method for Linear Dimensional Stability of a Gasket Material to Moisture

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology D1079.

4. Classification

4.1 Organic felts that are reinforced with inorganic fibers are covered by this specification.

4.2 Inorganic fiber-based asphaltic and nonasphaltic felts are covered by this specification.

5. Materials and Manufacture

5.1 In the process of manufacture, a single thickness of inorganic mat or organic felt that is reinforced with inorganic fibers shall be uniformly saturated or coated.

6. Performance Requirements

6.1 The material shall conform to the physical requirements prescribed in Table 1.

6.2 The finished product shall not crack nor be so sticky as to cause tearing or other damage upon being unrolled at temperatures between –1 and 60°C [30 and 140°F]. The finished product shall pass the water shower exposure test in accordance with 8.1.4, indicating resistance to liquid water transmission.

7. Dimensions, Masses, Workmanship, Finish, and Appearance

7.1 Dimensions and masses to be agreed upon between buyer and seller.

7.2 The finished material shall be free of visible external defects, such as holes, ragged or untrue edges, breaks, cracks, tears, bulges, and indentations.

8. Sampling and Test Methods

8.1 Sample the material and determine the properties enumerated in this specification in accordance with Test Methods D146/D146M.

¹ This specification is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.02 on Steep Roofing Products and Assemblies.

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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.

TABLE 1 Performance Requirements

Tear strength, min at 23 ± 2°C, [73 ± 4°F], N, [lbf]	4.0, [0.88] (in any direction)
Pliability at 23 ± 2°C, [73 ± 4°F], the ten strips tested shall not crack when bent 90° at a uniform speed over a 19 mm [0.75 in.] radius corner in 2 s	pass
Behavior (loss) on heating at 105°C [221°F] for 5 h, max, %	4
Liquid water transmission test	pass
Dimensional stability, low humidity to high humidity, max elongation, %	1.65

8.1.1 *Tear Strength*—Use test method in accordance with Test Methods **D228/D228M**.

8.1.1.1 *Precision and Bias*—A precision and bias statement is to be determined.

8.1.2 *Pliability Test*—Use test method in Test Methods **D228/D228M**.

8.1.3 *Behavior on Heating*—Use test method in Test Methods **D228/D228M**.

8.1.4 *Liquid Water Transmission*—Use test method in accordance with Specification **D4869/D4869M**.

8.1.4.1 *Precision and Bias*—No statement is made about either the precision or bias of this test method of measuring resistance to liquid water transmission since the result merely states whether or not there is conformance to the criteria specified in the procedure.

8.2 Determine the dimensional stability of the product by Test Method **F1087** except as modified here.

8.2.1 Three specimens shall be dried per Section 7.2 of Test Method **F1087** for Dimensional Stability to Low Humidity. Record the length of the specimens after drying as the low-humidity length of the specimens.

8.2.2 The specimens are then tested according to Section 7.3 of Test Method **F1087** for Dimensional Stability to High Humidity. Measure the specimens in the same place as previously measured and record as high-humidity length.

8.2.3 Report the results as percent dimensional change from low humidity to high humidity calculated using the following equation:

8.2.3.1 Low humidity to high humidity:

$$\Delta L_{\%} = \frac{L_h - L_l}{L_l} \times 100 \quad (1)$$

where:

L_l = low humidity length of specimen,

L_h = high humidity length of specimen, and

$\Delta L_{\%}$ = the percent change in length from low to high humidity.

8.2.4 Calculate and report the average percent change in length of the three individual specimens. The change reported is the change from low humidity to high humidity.

8.2.5 *Precision and Bias*—To be determined.

9. Inspection

9.1 Inspection of the material shall be made as agreed upon between the purchaser and the supplier as a part of the purchase contract.

10. Rejection and Resubmittal

10.1 Failure to conform to any of the requirements prescribed in this specification shall constitute grounds for rejection. In case of rejection, the seller shall have the right to re-inspect the rejected material and resubmit the lot after removal of those packages not conforming to the requirements.

11. Packaging and Package Marking

11.1 Unless otherwise agreed upon between the supplier and purchaser, each product package shall be plainly marked with the supplier's name, the product brand, and the ASTM designation.

11.2 The rolls shall be securely wrapped or banded in a manner that completely encircles the roll and will prevent slipping or unrolling.

11.3 No roll shall contain more than two pieces, and no more than 3 % of the rolls in any lot shall contain two pieces. If a roll contains a manufacturing splice, the splice shall be clearly marked.

12. Keywords

12.1 coated fiberglass mat; fiberglass; inorganic fibers—reinforced; organic felt; steep roofing; underlayment

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