



Standard Specification for Inorganic Underlayment for Use with Steep Slope Roofing Products¹

This standard is issued under the fixed designation D 6757; 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 standard 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 SI units are to be regarded as the standard. The values in parentheses are for information only.

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:

- D 146 Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing²
- D 228 Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing²
- D 1079 Terminology Relating to Roofing, Waterproofing, and Bituminous Materials²
- D 3462 Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules²
- D 4869 Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing²
- F 1087 Test Method for Linear Dimensional Stability of a Gasket Material to Moisture³

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology D 1079.

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. This coating may or may not be mineral filled.

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 described in 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 D 146.

8.1.1 *Tear Strength*—Use test method as described in Specification D 3462.

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

¹ This specification is under the jurisdiction of ASTM Committee D08 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.02 on Prepared Roofing.

Current edition approved Jan. 10, 2002. Published March 2002.

² *Annual Book of ASTM Standards*, Vol 04.04.

³ *Annual Book of ASTM Standards*, Vol 09.02.

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, conditioned to wet, max. elongation, %	1.25

8.1.2 *Pliability Test*—Use test method in Test Methods D 228.

8.1.3 *Behavior on Heating*—Use test method in Test Methods D 228.

8.1.4 *Liquid Water Transmission*—Use test method as described in Specification D 4869.

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 F 1087.

8.2.1 Measure the expansion of the product in going from the conditioned state to the water immersion state.

8.2.2 *Precision and Bias*—To be determined.

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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