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Standard Specification for Asphalt Roll Roofing (Organic Felt)¹

This standard is issued under the fixed designation D 6380; 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 asphalt roofing in sheet form, in widths agreed upon between the purchaser and the producer/supplier, composed of asphalt-saturated organic felt coated on both sides with asphalt. Class M and WS rolls are surfaced on the (exposed) weather side with mineral granules, except for any selvage. Class S rolls are surfaced with powdered talc, mica, or other fine mineral matter to prevent sticking.

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

1.3 *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 146 Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing

D 224 Specification for Smooth-Surfaced Asphalt Roll Roofing (Organic Felt)

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

D 249 Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules

D 371 Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules; Wide Selvage

D 1079 ~~Terminology Relating to Roofing, Waterproofing, and Bituminous Materials²~~ Terminology Relating to Roofing and Waterproofing

D 3019 ~~Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos-Fibered, and Non-Asbestos-Fibered²~~ Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos-Fibered, and Non-Asbestos-Fibered

D 4977 Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion

E 96/E 96M Test Methods for Water Vapor Transmission of Materials

3. Terminology

3.1 *Definitions*— Refer to Terminology D 1079 for definitions of terms used in this specification.

4. Classification

4.1 Class S (smooth) rolls shall be surfaced with fine mineral matter to prevent sticking.

4.1.1 *Type III*—Minimum net mass per unit area of roofing, 2495 g/m² (51.1 lb/100 ft²).

4.1.2 *Type IV*—Minimum net mass per unit area of roofing, 1943 g/m² (39.8 lb/100 ft²).

4.2 Class M (mineral) rolls shall be surfaced on the weather side with mineral granules, except for any selvage.

4.2.1 *Type II*—Minimum net mass of granule-surface portion, 3490 g/m² (71.5 lb/100 ft²).

4.3 Class WS (wide selvage) rolls shall be surfaced on the weather side with mineral granules for approximately half the width.

4.3.1 *Type III*—Minimum net mass per unit area, 1733 g/m² (35.5 lb/100 ft²).

4.3.2 *Type IV*—Minimum net mass per unit area, 2090 g/m² (42.8 lb/100 ft²).

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 Prepared Roofings, Shingles and Siding Materials.

The materials covered in this standard were previously covered by three separate roll roofing material standards: Specifications D 224, D 249, and D 371.

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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* Vol 04.04, volume information, refer to the standard's Document Summary page on the ASTM website.

5. Materials and Manufacture

5.1 In the process of manufacture, a single thickness of dry organic felt shall first be saturated with asphalt. A coating asphalt, compounded with or without a fine mineral stabilizer insoluble in water, shall be applied to one or both sides of the sheet. Class S rolls shall be surfaced on one side with a suitable material to prevent sticking in the roll. Class M and WS rolls shall be covered on the weather side with mineral granules, except for any selvage; the reverse side shall be covered with a suitable material to prevent sticking in the roll.

5.2 The felt shall be roofing felt primarily composed of organic fibers. The surface of the felt shall be uniformly and relatively smooth. Upon splitting or tearing on the bias, the felt shall appear reasonably free of lumps or particles of foreign substances.

6. Physical Properties

6.1 Class S rolls shall conform to the breaking strength and water permeance requirements prescribed in Table 1.

6.2 Upon being unrolled, the finished product shall not crack at ambient temperatures above 10°C (50°F) nor be so sticky at any temperature below 60°C (140°F) as to cause tearing or material damage.

6.3 Class M rolls with a 102-mm (4-in.) wide selvage shall meet the lap strength requirements with Type II or Type III cement specified in Specification D 3019.

6.4 *Pliability at 25°C (77°F)*—At least eight strips out of ten from the granule-surfaced portion of the sheet shall not crack when tested in accordance with the appropriate section of Test Methods D 228. The samples shall be tested using a mandrel with a radius of 12.7 mm (½ in.) for Class S roofing and 19 mm (¾ in.) radius for Class M and WS roll roofing.

6.5 *Behavior on Heating to 80°C (176°F) for 2 h*—There shall be no more than 1.5 % volatile loss; and there shall be no flowing, sagging, blistering, or absorption of the asphalt coating; and any granular surfacing shall not slide more than 2 mm (⅛ in.) when tested in accordance with the appropriate section of Test Methods D 228.

7. Dimensions, Mass, and Permissible Variations

7.1 *Width*—The material shall be put up in rolls and shall be 914 mm (36 in.) wide, ±0.7 %. Other widths agreed upon between the purchaser and the producer/supplier shall not be prohibited.

7.2 *Selvage*—Class M rolls are available without a selvage, with a 51 ± 6-mm (2 ± ¼-in.) selvage, or with a 102 ± 6-mm (4 ± ¼-in.) selvage. For Class WS rolls, the coated and granule-surfaced portion of the weather side shall have a uniform, minimum width of 432 ± 6 mm (17 ± ¼ in.) for the standard 914-mm (36-in.) wide sheet, or as agreed upon between the

TABLE 1 Specifications for Asphalt Roll Roofing

| Class | S | S | M | WS | WS |
|--|-------------|-------------|----------------------------|----------------------------|----------------------------|
| Type | III | IV | II | III | IV |
| Minimum net mass per unit area (of granule-surfaced portion for Classes M, and WS), g/m ² (lb/100 ft ²) | 2495 (51.1) | 1943 (39.8) | 3490 (71.5) | 1733 (35.5) | 2090 (42.8) |
| Minimum net mass per standard roll, average kg (lb): | | | | | |
| no selvage | N/A | N/A | 36.5 (80.3) | N/A | N/A |
| 2-in. selvage | N/A | N/A | 35.6 (78.3) | N/A | N/A |
| 4-in. selvage | N/A | N/A | 36.5 (80.2) | N/A | N/A |
| wide selvage | N/A | N/A | N/A | 19.1 (42.0) | 22.0 (48.5) |
| Minimum mass of desaturated, moisture-free felt, g/m ² (lb/100 ft ²) | 440 (9.0) | 250 (5.2) | 440 (9.0) | 322 (6.6) | 440 (9.0) |
| Minimum mass of asphalt saturant, soluble in 1,1,1-trichloroethane, based on the mass of desaturated, moisture free felt, % ^A | 150 | 120 | 150 | 140 | 150 |
| Minimum mass of coating, surfacing (talc, both sides) and mineral stabilizer, g/m ² (lb/100 ft ²) | 879 (18.0) | 879 (18.0) | N/A | N/A | N/A |
| Maximum mass of mineral matter passing a 212-µm (No. 70) sieve, based on mass of the coating and surfacing (talc, both sides), % | 60 | 60 | 60 | 60 | 60 |
| Maximum % moisture at time of manufacture | 3 | 3 | 3 | 3 | 3 |
| Minimum mass of weather side coating and mineral stabilizer (excluding surfacing; talc and/or granules), g/m ² (lb/100 ft ²), [maximum g/m ² (lb/100ft ²)] | N/A | N/A | 903 (18.5) [1582(32.4)] | 903 (18.5) [1582(32.4)] | 903 (18.5) [1582(32.4)] |
| Minimum mass of mineral matter passing a 3.35-mm† (No. 6) sieve and retained on a 212-µm (No. 70) sieve, g/m ² (lb/100 ft ²) ^B | N/A | N/A | 1171 (24.0) | 903 (18.5) | 903 (18.5) |
| Maximum weight of displaced granules, g | N/A | N/A | 1.0 | 1.0 | 1.0 |
| Minimum breaking strength with fiber grain, kN/m of width (lbf/in. of width) | 7.9 (45.0) | 6.1 (35.0) | N/A | N/A | N/A |
| Maximum vapor transmission (permeance), ng/Pa·s·m ² (grains/h·ft ² ·in. Hg) | 29 (0.5) | 29 (0.5) | N/A | N/A | N/A |

^A For Class S rolls, the mass of saturant shall not be less than 1.2 times the mass of the dry felt for Type IV with a saturation efficiency of not less than 70 %.

^B Granule-surfaced portion only.