



Designation: D3909/D3909M – 22

Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules¹

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*This standard has been approved for use by agencies of the U.S. Department of Defense.
This specification replaces Federal Specification SS-R-630, Class 3.*

1. Scope

1.1 This specification covers asphalt-impregnated and coated glass felt roll roofing surfaced on the weather side with mineral granules, for use as a cap sheet in the construction of built-up roofs.

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 nonconformance with the standard.

1.3 *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
- 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
 - D4977/D4977M Test Method for Granule Adhesion to Mineral-Surfaced Roofing by Abrasion

3. Terminology

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

¹ This specification is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.04 on Felts, Fabrics and Bituminous Sheet 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.

4. Materials and Manufacture

4.1 The glass felt shall be a thin, porous sheet composed predominately of fine glass fibers uniformly deposited in a nonwoven pattern. The felt may be reinforced with random or parallel oriented glass yarns, or both, which may be gathered or twisted, bonded, or unbonded. The felt shall contain a water-insoluble agent.

4.2 In the process of manufacture, the glass mat shall be uniformly impregnated and coated on both sides with an asphaltic material, permitted to be compounded with a mineral stabilizer.

4.3 The weather side shall be uniformly surfaced with mineral granules firmly embedded in the asphaltic coating, except for any selvage.

4.4 The reverse side shall be covered with a material to prevent sticking in the roll.

5. Physical Properties

5.1 The material shall conform to the dimensions and masses prescribed in Table 1 and areas prescribed in Table 2.

5.2 The finished product shall not crack nor be so sticky as to cause tearing or other damage upon being unrolled at temperatures between 10 and 60 °C [50 and 140 °F].

5.3 *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 Section 10 of Test Methods D228/D228M.

5.4 *Mass Loss and Behavior on Heating*—There shall be no more than 1.5 % volatile loss, and the granular surfacing shall not slide more than 2 mm [$1/16$ in.] when tested in accordance with Section 11 of Test Methods D228/D228M.

6. Workmanship, Finish, and Appearance

6.1 The glass felt shall be thoroughly and uniformly impregnated with asphalt and shall show no uncoated fibers. The fiber pattern may be discernible on the back side.

6.2 The surface of the weather side shall be uniform in finish and texture. The mineral granules shall be uniformly

TABLE 1 Dimensions and Masses of Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules^A

Width of roll, mm [in.]	914 [36] ± 0.7 % or as agreed upon between purchaser and supplier
Average mass per roll, exclusive of wrapping and packaging material, min, kg [lb]:	
No selvage	31.3 [69]
50-mm [2-in.] selvage	30.8 [68]
100-mm [4-in.] selvage	31.8 [70]
Mass per unit area of granule-surfaced sheet, min, g/m ² [lb/100 ft ²]	3085 [63.2]
Mass per unit area of desaturated glass felt, min, g/m ² [lb/100 ft ²]	83 [1.7]
Mass per unit area of mineral matter passing a 3.35-mm [No. 6] sieve and retained on a 212-μm [No. 70] sieve, min, g/m ² [lb/100 ft ²]	1170 [24]
Mass of mineral matter passing a 212-μm [No. 70] sieve based on the mass of the coating asphalt and the mineral matter passing the 212-μm [No. 70] sieve, max, %	55
Moisture at point of manufacture, max, % ^A	1.0
Granule embedment, maximum loss, g	2

^A At time of manufacture. Products with higher moisture content at time of installation may cause hot materials to foam, creating interply voids that may result in blisters.

TABLE 2 Area of Roll Roofing with Mineral Granules

Selvage Width, mm [in.] ^A	Gross Area per Roll, m ² [ft ²] ^A	
	9.29-m ² Coverage	[100-ft ²] Coverage
none	10.03 ± 1 %	[108 ± 1 %]
50 [2]	10.03 ± 1 %	[108 ± 1 %]
100 [4]	10.6 ± 1 %	[114 ± 1 %]

^A Other areas and selvage widths shall be permitted as specified by the manufacturer.

distributed in a smooth layer over the entire surface, except for any selvage, and shall be firmly embedded in the asphalt coating.

6.3 When a selvage is provided, the line of demarcation between the surfaced and unsurfaced portions of the sheet shall be straight and parallel to the edges of the sheet. A suitable material shall be applied to prevent sticking of the coated selvage in the roll.

6.4 The asphalt coating and the material applied to the reverse side of the sheet to prevent sticking in the roll shall be uniform over the entire surface.

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

7. Sampling and Test Methods

7.1 Unless otherwise indicated, sample the material and determine the properties enumerated in this specification in accordance with Test Methods [D228/D228M](#).

7.2 *Granule Embedment*—Determine the quality of the embedment of the mineral granules in the surface of the product using Test Method [D4977/D4977M](#).

8. Inspection

8.1 *Inspection*—Inspection shall be in accordance with the requirements of this specification.

8.2 *Inspection Alternatives*—Alternative inspection requirements shall be determined by and as agreed upon between the purchaser and the supplier.

9. Rejection and Resubmittal

9.1 *Failure to Conform*—Failure to conform to any of the requirements as stated in this specification constitutes grounds for rejection.

9.2 *Rejection Redress*—The supplier shall have the right to inspect the rejected materials. The supplier and the purchaser shall agree to the quantity of rolls deemed unacceptable. The supplier shall then have the right to submit the same number of new rolls as replacement.

10. Packaging and Package Marking

10.1 Unless otherwise agreed upon between the supplier and purchaser, each product package shall be plainly marked with the supplier's name, the product brand, the ASTM designation, and type of bitumen if not evident in the label name of the product.

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

10.3 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.

11. Keywords

11.1 asphalt roll roofing; glass felt; mineral granules