



Designation: D7832/D7832M – 14 (Reapproved 2021)

Standard Guide for Performance Attributes of Waterproofing Membranes Applied to Below-Grade Walls / Vertical Surfaces (Enclosing Interior Spaces)¹

This standard is issued under the fixed designation D7832/D7832M; 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 guide lists test methods intended to establish a minimum level of acceptable performance attributes for reinforced or laminated waterproofing membranes applied to below-grade walls.

1.2 This guide does not include cementitious, integral, or bentonite waterproofing systems.

1.3 This guide does not include membranes applied under slabs on grade or on suspended slabs below grade or applied to soil retaining systems, water containment structures, or tunnels.

1.4 It is not possible to establish a precise correlation between laboratory tests on waterproofing membranes and performance attributes after installation due to variations in chemicals in the soil, design, material, and installation.

1.5 The values stated in either inch-pound or SI 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.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *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

- C1305/C1305M Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
- C1522 Test Method for Extensibility After Heat Aging of Cold Liquid-Applied Elastomeric Waterproofing Membranes
- D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation
- D471 Test Method for Rubber Property—Effect of Liquids
- D543 Practices for Evaluating the Resistance of Plastics to Chemical Reagents
- D570 Test Method for Water Absorption of Plastics
- D896 Practice for Resistance of Adhesive Bonds to Chemical Reagents
- D903 Test Method for Peel or Stripping Strength of Adhesive Bonds
- D1079 Terminology Relating to Roofing and Waterproofing
- D1204 Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
- D1790 Test Method for Brittleness Temperature of Plastic Sheeting by Impact
- D4551 Specification for Poly(Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane
- D5147/D5147M Test Methods for Sampling and Testing Modified Bituminous Sheet Material
- D5385/D5385M Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
- D5636/D5636M Test Method for Low Temperature Unrolling of Felt or Sheet Roofing and Waterproofing Materials
- D5683/D5683M Test Method for Flexibility of Roofing and Waterproofing Materials and Membranes
- D5849/D5849M Test Method for Evaluating Resistance of Modified Bituminous Roofing Membrane to Cyclic Fatigue (Joint Displacement)

¹ This guide is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.22 on Waterproofing and Dampproofing Systems.

Current edition approved Dec. 1, 2021. Published December 2021. Originally approved in 2014. Last previous edition approved in 2014 as D7832/D7832M – 14. DOI: 10.1520/D7832_D7832M-14R21.

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 Waterproofing Material Physical Properties for Types I and II

Property	Standard	Criteria
A. Resistance to Hydrostatic Pressure	Test Method D5385/D5385M	No leaks at 103 kPa [15 psi] [34.65 ft head] or at the maximum hydrostatic pressure determined by the subsurface soil investigation per IBC para. 1802.2.3
B. Resistance to Deterioration from Organisms and Substances in Contacting Soil	Test Method D7281	Pass
	Test Methods E154/E154M	<0.3 perms water vapor permeability
C. Adhesion to Substrate (Except for Grade 1, Class 2)	Specification E1745	Section 7 (using a 3 in. thick precast concrete paver in lieu of cast-in-place concrete).
	Test Method D7234 Test Method D903	>1518 kPa [220 psi] using a 50 mm [2 in.] dolly 3 pli [535.8 gm/cm]

TABLE 2 Waterproofing Material Physical Properties for Type I

Property	Standard	Criteria
A. Low Temperature Unrolling Type 1A	Test Method D5636/D5636M	No Cracking at 0 °C [32 °F]
B. Crack Bridging	Test Method D5849/D5849M	Test Condition 1, Test Condition 2, or Test Condition 5 for 500 cycles select appropriate temperature for the weather conditions for which the membrane is applied.
C. Flexibility	Test Method D5683/D5683M	No Cracking
D. Water Absorption	Test Method D95	Procedure BW, <2 % by weight. Run 45 cycles of immersion in water at 23 °C and 50 °C [73 °F and 122 °F] for 24 h for start of test and after 45 th cycle.

TABLE 3 Waterproofing Material Physical Properties for Type II

Property	Standard	Criteria
A. Water Absorption	Test Method D570	<3 % by weight when tested per Section 7A
	Test Method D471	<3 % by weight when tested per Section 12 at 23 °C [73 °F] for 2998 h
B. Linear Dimension Change (PVC only)	Specification D4551	<5 % at 70 °C [158 °F] 1 h per Test Method D1204
C. Extensibility After Heat Aging	Test Method C1522	6.4 mm [¼ in.]
D. Crack Bridging Ability	Test Method C1305/C1305M	No Cracking
E. Low Temperature Flexibility and Crack Bridging for Liquid-Applied Membranes	Test Method C1305/C1305M	Pass
F. Resistance of Plastics to Bacteria	Specification D4551	No effect 12 of 12 samples pass
G. Resistance to Chemical Reagents	Practice D896	No delamination, blistering, emulsification, or (undiluted deterioration 15 N/5P/5Potash)
H. Resistance to Petroleum	Test Methods E154/E154M Section 14	<0.3 perms

8. Keywords

8.1 bacteria resistances; chemical resistances; cyclical fatigues; hydrostatic pressures; liquid-applied; moisture contents; performance levels; single and multi-ply; waterproofing membranes

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