



Designation: D2523/D2523M – 13 (Reapproved 2024)

Standard Practice for Testing Load-Strain Properties of Roofing Membranes¹

This standard is issued under the fixed designation D2523/D2523M; 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 practice is a guide for determining the load-strain properties of roofing membranes and their components at various temperatures. Test specimens may be prepared in the laboratory or cut from samples obtained in the field.

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 are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

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

1.4 *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

D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation

D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

E178 Practice for Dealing With Outlying Observations

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

¹ This practice is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.20 on Roofing Membrane Systems.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.1.1 *roofing membrane*—that part of the roofing system whose primary function is to exclude water; it does not include field-applied aggregate.

4. Significance and Use

4.1 This practice is designed to aid those interested in the engineering properties of roofing membranes.

4.2 The data obtained will not permit prediction of the service life of a membrane under field conditions. The data will provide a basis for study of the mechanical properties of the membrane. Note that if strain rates, specimen dimensions, initial clear distance between clamps, or temperatures and moisture contents are varied, the data may not be strictly comparable.

5. Sampling

5.1 Take field membrane sample at least 100 by 250 mm [4 by 10 in.] in accordance with good roofing practices. In cases where field-applied aggregate is in place, remove it with a scraper such as a heated putty knife.

5.1.1 Sample those areas of the membrane that are expected to represent the extremes in load/strain characteristics.

5.1.2 At least one sample is required for each test temperature at which it is desired to determine load/strain properties.

5.2 Prepare laboratory samples at least 200 by 300 mm [8 by 12 in.] in strict accordance with the roofing specification being tested. Observe all cautions specified, such as not overheating the bitumen. Do not oven condition any of the components or the final sample.

5.2.1 Select those areas of the membrane that are expected to represent the extremes in load-strain characteristics. Prepare at least one sample of each type for each proposed test temperature. If there is any doubt about these areas, include all possible variations. The samples must be uniform in cross section.

5.2.2 Select materials at random when possible. Components should be conditioned at 50 ± 5 % relative humidity and 25 ± 2.5 °C [77 ± 4.5 °F] for 24 h prior to constructing samples.

5.2.3 The quantity of material in any layer should be within ± 10 %, and the entire sample should be within ± 5 % of the quantities specified.