



# Standard Test Method for Extensibility After Heat Aging of Cold Liquid-Applied Elastomeric Waterproofing Membranes<sup>1</sup>

This standard is issued under the fixed designation C1522; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method describes a laboratory procedure for determining extensibility for one- or two-component cold liquid-applied elastomeric waterproofing membranes.

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 committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

1.4 *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*:<sup>2</sup>

**C717** Terminology of Building Seals and Sealants

**C1250** Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes

**C1375** Guide for Substrates Used in Testing Building Seals and Sealants

## 3. Terminology

3.1 *Definitions*—Refer to Terminology **C717** for definitions of terms used in this standard.

## 4. Comparison to Other Standards

4.1 The committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

## 5. Summary of Test Method

5.1 This test method consists of preparing three samples, for each membrane to be tested, and extending after aging 14 days at  $70 \pm 2^\circ\text{C}$  ( $158 \pm 3.6^\circ\text{F}$ ).

## 6. Significance and Use

6.1 This test method is used to determine a membrane's ability to bridge a crack that forms after the membrane has been applied and allowed to cure.

## 7. Apparatus

7.1 *Forced Draft Oven*, controlled to  $70 \pm 2^\circ\text{C}$  ( $158 \pm 3.6^\circ\text{F}$ ).

7.2 *Three Mortar Test Blocks*, dimensions  $12 \times 76 \times 152$  mm ( $\frac{1}{2} \times 3 \times 6$  in.) nominal with 6 mm ( $\frac{1}{4}$  in.) deep notch cut across the width (see **Fig. 1**).

7.3 *Masking Tape*.

7.4 *Sand*.

7.5 *Wood Board, Steel Wedge, Hammer, and Wood Blades*.

7.6 *Testing Machine*, with tension grips capable of pulling at a rate of separation of 12.7 mm (0.5 in.)/min.

7.7 *Vernier Calipers*.

## 8. Conditioning/Mixing

8.1 Unless otherwise specified by those authorizing the test, standard conditions are  $23 \pm 1^\circ\text{C}$  ( $73.4 \pm 1.8^\circ\text{F}$ ) and  $50 \pm 5\%$  relative humidity.

8.2 Store all membrane materials to be tested in an unopened container at standard conditions for at least 24 h before any test specimens are prepared.

8.3 Follow the manufacturer's instructions for mixing and preparing membrane materials for testing. Thoroughly stir one-component materials before using. Mix two-component compounds in the ratio recommended by the manufacturer. If required by the manufacturer, mix each component prior to the final mix.

## 9. Procedure

9.1 Prepare three test specimens for each membrane to be tested as follows:

<sup>1</sup> This test method 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 May 1, 2013. Published May 2013. Originally approved in 2002. Last previous edition approved in 2005 as C1522-05. DOI: 10.1520/C1522-05R13.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

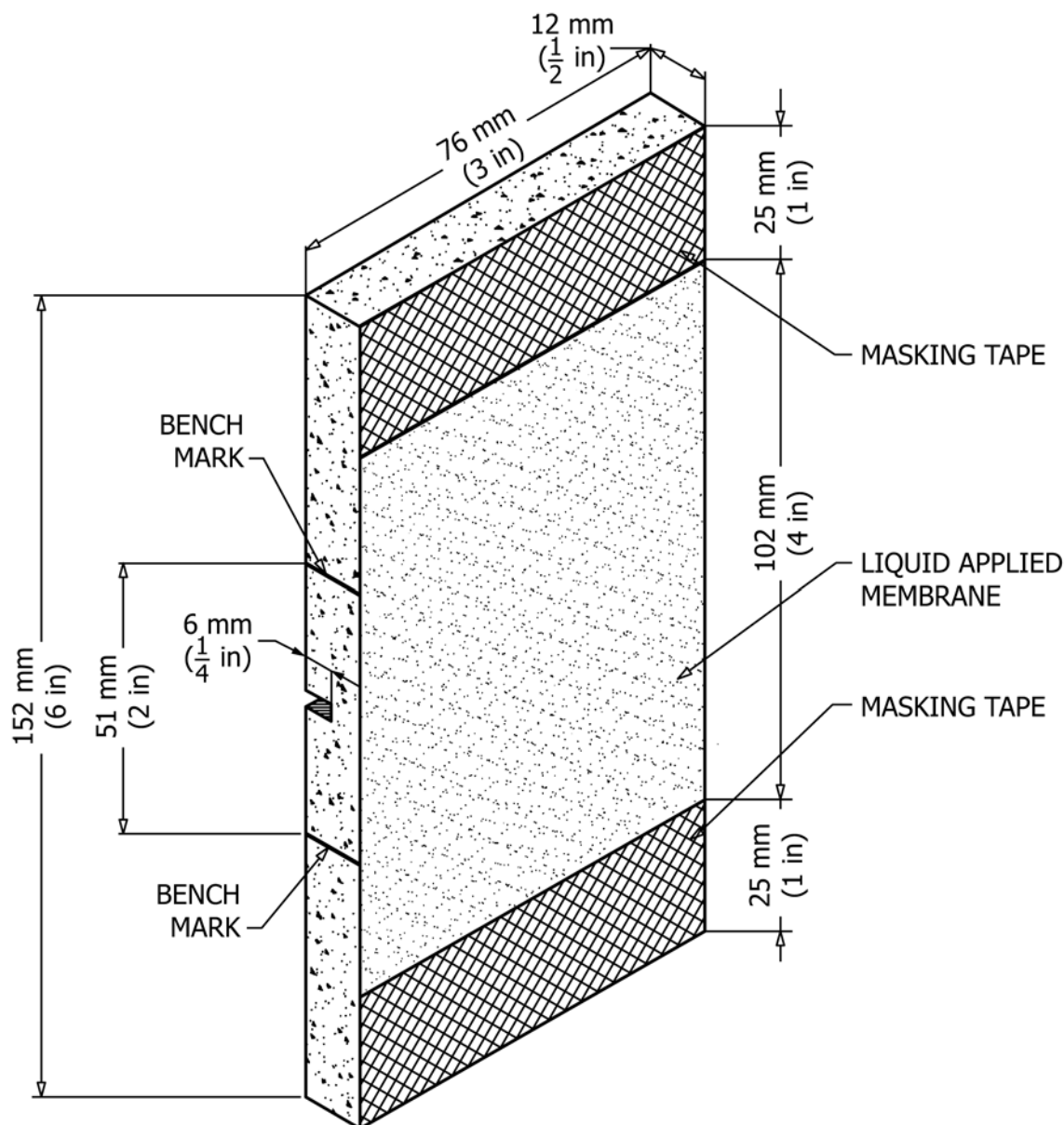


FIG. 1 Test Block for Testing Extensibility After Heat Aging

9.1.1 Cut each of the three mortar slabs crosswise in the center of the 152 mm (6 in.) length to a depth of 6 mm ( $\frac{1}{4}$  in.), as shown in Fig. 1.

NOTE 1—Mortar substrates must be prepared according to Guide C1375.

9.1.2 Measure the thickness of each block to the nearest 0.025 mm (0.001 in.) on each side of the center notch, using vernier calipers. Mark the location where the measurements were taken for future use. Record these values.

9.1.3 Mark the edge of each slab along the 152 mm (6 in.) length so that the bench marks are 51 mm (2 in.) apart and approximately 25 mm (1 in.) on each side of the center cut as shown in Fig. 1.

9.1.4 Apply masking tape across the ends of the uncut 76 by 152 mm (3 by 6 in.) faces of the slabs, leaving an exposed 76 by 102 mm (3 by 4 in.) area on each where the membrane may be applied.

9.1.5 For self-leveling membrane materials, lay the slabs on a bed of sand and level them.

NOTE 2—For self-leveling membranes, apply 50 mm (1 in.) wide masking tape around the slab perimeter. The tape should protrude above the slab surface on all four sides to form a dam.

9.1.6 Apply sufficient membrane material to yield a dry film thickness of  $1.52 \pm 0.13$  mm ( $60 \pm 5$  mils) to the exposed area on the slab. Check the membrane thickness with a wet film gage. The film thickness may be built up in multiple coats if specified by the manufacturer. Allow the three specimens to cure for 14 days at standard conditions (see 8.1).

NOTE 3—Prior to application, the non-volatile content or application rate must be known. Perform Test Method C1250 to determine nonvolatile content or contact the manufacturer for required information.

NOTE 4—An alternative thickness can be tested and must be reported in the Test Report.

9.1.7 Place the test assemblies in a forced-draft oven for 14 days at  $70 \pm 2^\circ\text{C}$  ( $158 \pm 3.6^\circ\text{F}$ ). Remove the test assemblies and let cool 1 h at standard conditions. Remove the masking tape.

9.1.8 Using vernier calipers, carefully measure the thickness of the substrate-membrane composite at the locations previously measured and marked. Measure to the nearest 0.025 mm (0.001 in.). Record these measurements.

9.1.9 Place the test assemblies on a release paper covered wooden board approximately 152 by 305 mm (6 by 12 in.) with the membrane side face down. Restrain the test blocks by blocking the ends with blocks of wood nailed to the base board to prevent the test blocks from flying apart. Insert a steel wedge into the cut and hit with a hammer no harder than necessary to cause the test block to crack along the cut. Be careful, as excessive force will crack the sample.

9.1.10 Handling very carefully to prevent tearing the membrane, place each of the specimens in turn in the jaws of

the testing machine and pull it in a direction perpendicular to the break, at a separation rate of 12.7 mm (0.5 in.)/min., until the distance between the benchmarks is 57.2 mm (2.25 in.). Stop the machine and immediately examine the films for any breaks or cracks.

## 10. Test Report

10.1 Number and length of cracks, tears or holes observed after extending the membrane.

10.2 Any deviations from this method as written.

10.3 Thickness of membrane.

## 11. Precision and Bias

11.1 Round-robin testing in progress.

## 12. Keywords

12.1 extensibility; membrane; waterproofing

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