



Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish Systems (EIFS) Joints¹

This standard is issued under the fixed designation C 1382; 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 test method describes a laboratory procedure for measuring tensile adhesion properties of sealants to exterior insulation and finish systems (EIFS) under dry, wet, frozen, heat-aged, and UV/condensation-aged conditions.

1.2 The values stated in SI (metric) units are to be regarded as the standard. The inch-pound values given in parentheses are provided 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.*

1.4 At this time, no comparable ISO standard exists.

2. Referenced Documents

2.1 *ASTM Standards:*

C 717 Terminology of Building Seals and Sealants²

C 1135 Test Method for Determining Tensile Adhesion Properties of Structural Sealants²

E 631 Terminology of Building Constructions³

G 53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials⁴

3. Terminology

3.1 *Definitions*—refer to Terminology C 717 for definitions of the following terms used in this test method: adhesion failure, cohesive failure, primer, sealant, and substrate.

3.2 *Description of Terms Specific to This Standard*—refer to Terminology E 631 for definitions of the following terms used in this test method: base coat, EIFS, and finish coat.

4. Summary of Test Method

4.1 This test method is a modification of Test Method C 1135. Preliminary testing using Test Method C 794 may be

helpful as a screen test to determine dry adhesion capabilities and priming requirements before proceeding with this test. This test is performed after the specimen assemblies are subjected to a variety of conditions that artificially accelerate the effect of weathering impact on the sealant-to-EIFS bond. The conditioning employed in this test does not necessarily address all field conditions.

5. Significance and Use

5.1 EIFS are barrier-type systems that must be weather-proofed to prevent the passage of moisture, air, dust, heat, and cold from entering a structure.

5.2 This test method is intended to determine the adhesion properties of the sealant with the EIFS substrate as determined by its tensile adhesive properties for dry, wet, frozen, heat-aged, and UV/condensation-aged conditions.

6. Apparatus and Materials

6.1 *Tensile Testing Machine*—Capable of producing a tensile load on the specimen at the rate of 50 ± 5 mm (2.0 ± 0.20 in.)/min., and with a recording chart to show stress/strain values (tensile modulus).

6.1.1 *Fixed Member*—A fixed or essentially stationary member carrying one grip.

6.1.2 *Movable Member*—A movable member carrying a second grip.

6.1.3 *Grips*—The grips should be suitable to firmly grasp the test fixture that holds the test specimen and should be designed to eliminate eccentric specimen loading. Specimen loading should be perpendicular to the substrate/sealant interfaces. For alignment purposes, each grip shall have a swivel or universal joint at the end nearest to the specimen.

6.1.4 *Grip Fixture*—A fixture capable of being held by the grips and furnishing a tensile force to the sealant specimen.

6.2 *Spatulas*—For use in applying sealant.

6.3 *Caulking Gun*—For extruding sealant from cartridges, when applicable.

6.4 *Primer*, if applicable.

6.5 *Sealant*.

6.6 *Spacer*—One piece of spacer made from polytetrafluorethylene (PTFE) or a suitable rigid material shall be used to which the test sealant will not bond.

6.7 *Knife*, with sharp razor-type blade.

¹ This test method is under the jurisdiction of C-24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.20 on General Sealant Standards.

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² *Annual Book of ASTM Standards*, Vol 04.07.

³ *Annual Book of ASTM Standards*, Vol 04.11.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.

6.8 *Masking Tape.*

6.9 *EIFS substrates*, as identified in 10.1.5.

6.10 *Rigid substrate*, for applying EIFS coating in the peel adhesion test.

6.11 *Waterproof membrane*, such as molten paraffin.

6.12 *Freezer*, $-18 \pm 2^\circ\text{C}$ ($0 \pm 3.6^\circ\text{F}$).

6.13 *Oven*, $70 \pm 2^\circ\text{C}$ ($158 \pm 3.6^\circ\text{F}$).

6.14 *UV/condensation*, in accordance with Practice G 53.

7. Test Specimens

7.1 Two (2) EIFS samples are required for each test specimen assembly as shown in Fig. 1. The EIFS sample size shall

be determined by the size of the test machine grips, yet they must be a minimum of 25 by 75 mm (1 by 3 in.). It may be necessary to cut the EIFS substrate into rectangles appropriately sized for the test. If cutting is required, the EIFS must be configured such that three of the four long ends of the EIFS substrate will be coated with EIFS base or finish coat. The remaining long end and two short ends will be uncoated EPS board with cut edges of the EIFS coating visible. In all cases, the sealant should be applied to the EIFS finish on a long side at the edge where a coated surface continues around the corner. The sealant should not be applied on the edge where coating

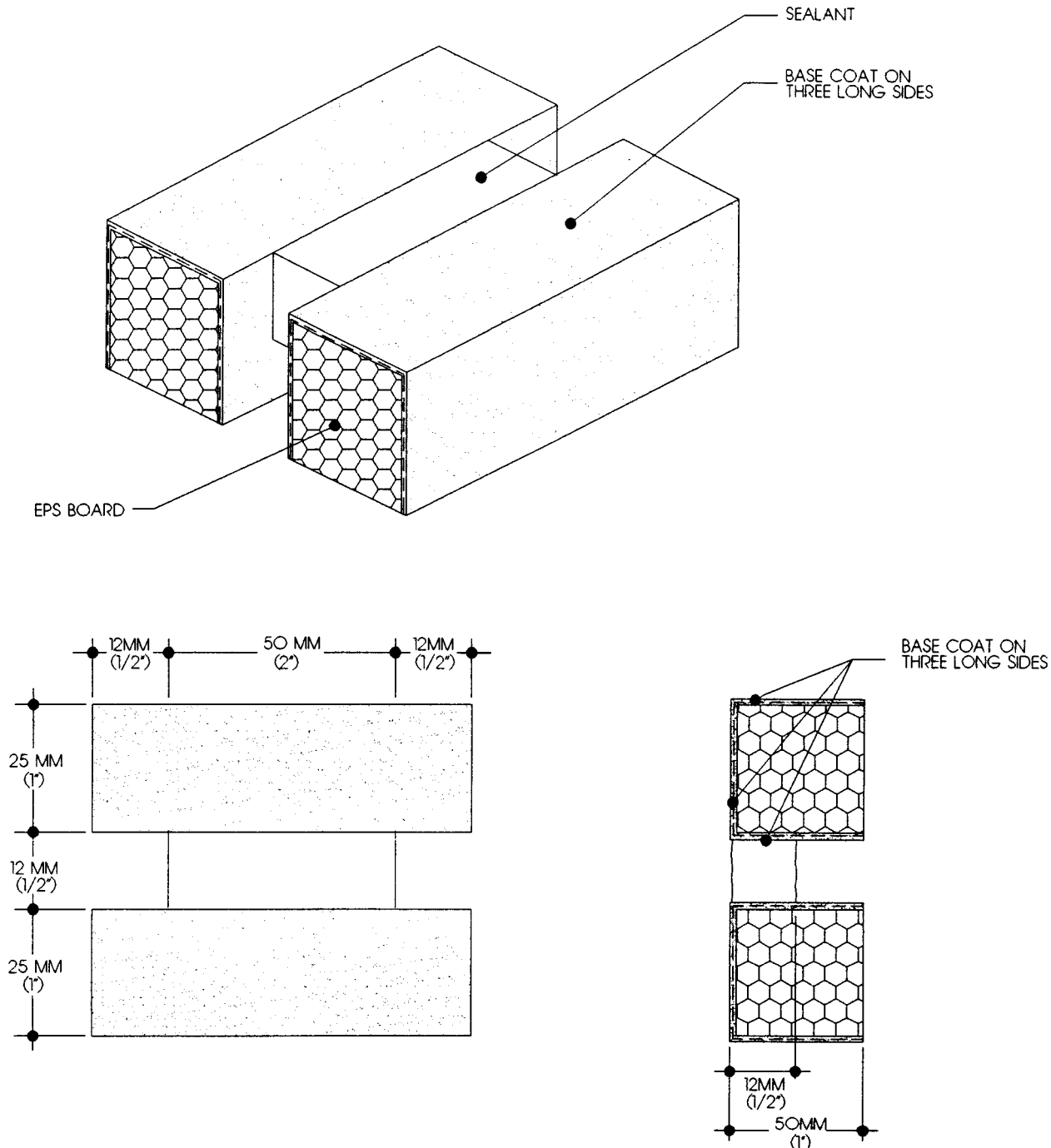


FIG. 1 Test Specimen Assembly