



Designation: ~~C1481-11~~ Designation: C1481 - 12

## Standard Guide for Use of Joint Sealants with Exterior Insulation and Finish Systems (EIFS)<sup>1</sup>

This standard is issued under the fixed designation C1481; 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 guide describes the use of single and multi-component, cold-applied joint sealants, or precured sealant systems for joint sealing applications, or both, in buildings using Exterior Insulation and Finish Systems (EIFS) on one or both sides of the joint. Refer to 10.1 for joint seal geometries.

1.2 The elastomeric sealants described by this guide meet the requirements of Specifications C834, C920, or C1311.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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.*

1.5 There are no ISO standards similar or equivalent to this ASTM standard.

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

C717 Terminology of Building Seals and Sealants

C719 Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

C794 Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants

C834 Specification for Latex Sealants

C920 Specification for Elastomeric Joint Sealants

C1193 Guide for Use of Joint Sealants

C1311 Specification for Solvent Release Sealants

C1382 Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish Systems (EIFS) Joints

C1397 Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage

C1472 Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width

E2110 Terminology for Exterior Insulation and Finish Systems (EIFS)

E2511 Guide for Detailing of EIFS-Clad Wall Assemblies

E2568 Specification for PB Exterior Insulation and Finish Systems

#### 2.2 ANSI Standard:

American National Standard for Exterior Insulation and Finish Systems (EIFS)<sup>3</sup>

### 3. Terminology

#### 3.1 Definitions:

3.1.1 Refer to Terminology C717 for definitions of the following terms used in this guide: *bicellular sealant backing, bond breaker, bridge sealant joint, butt sealant joint, chemically curing sealant, closed cell sealant backing, compatibility, compatible materials, cure, elastomeric, elongation, fillet sealant joint, joint, lap sealant joint, latex sealant, modulus, non-sag sealant, open cell sealant backing, precured sealant, primer, seal, sealant, sealant backing, shelf-life, solvent-release sealant, shrinkage, substrate, tooling, tooling time, working life (pot life).*

3.1.2 Refer to Terminology E2110 for definitions of the following terms used in this guide: *accessories, base coat, cure, dry,*

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.10 on Specifications, Guides and Practices.

Current edition approved July 1, 2011-2012. Published August 2011, June 2012. Originally approved in 2000. Last previous edition approved in 2006 as C1481-00(2006)-C1481-11. DOI: 10.1520/C1481-12.

<sup>2</sup> 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.

<sup>3</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

durability, edge wrap, embed, expansion joint, exterior insulation and finish system (EIFS), finish coat, lamina, nonmetallic reinforcing mesh, primers, reinforced base coat, substrate, texture, thermal insulation board, wrap.

**4. Significance and Use**

4.1 The intent of this guide is to provide information and guidelines for consideration by the designer or applicator of joint seals in, or adjacent to, EIFS. Refer to Specification E2568 for additional information pertaining to specifying Class PB EIFS. Refer to Guide E2511 for additional information pertaining to detailing of EIFS-Clad Wall Assemblies.

4.2 Proper selection and use of a sealant is fundamental to its ultimate performance, service life, and durability. A sealant joint subjected to movement and other similar performance factors should be designed for the particular application to avoid compromising its performance capability and causing failures. Refer to C1193 for guidance.

4.3 In addition to the design and installation data in this guide, consult the sealant manufacturer about applications for its products and their proper use and installation.

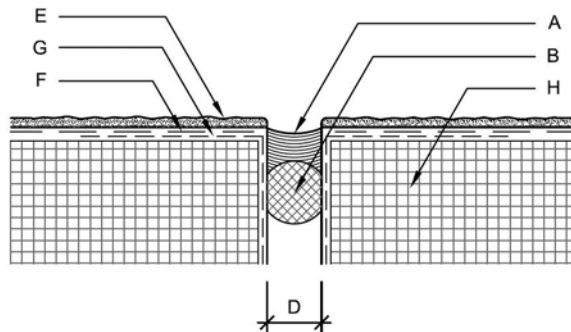
**5. General**

5.1 The major components of a joint seal in, or adjacent to, EIFS that should be considered when selecting or using sealants are as follows: EIFS, primer, sealant backing or bond-breaker, adjacent substrates and sealant (see Figs. 1-11).

NOTE—This legend applies to Figs. 1-11

Legend	
A.	Sealant
B.	Sealant Backing
C.	Bond Breaker
D.	Joint Width
E.	Finish Coat
F.	Reinforcing Mesh Embedded in Base Coat
G.	Wrapped Mesh Embedded in Base Coat
H.	Insulation Board
I.	Adjacent Substrate
J.	Sealant Bead
K.	Manufacturer's Primer or Paint Coating (if required)
L.	Trim Accessory
M.	Precured Sealant
N.	Existing Sealant Joint with Optional Cut Down the Middle

5.2 EIFS presents a substrate that may be acceptable for sealant adhesion if the sealant joint is properly designed in accordance with the EIFS and sealant manufacturer recommendations. Most EIFS manufacturers recommend adhering sealant directly to the base coat or primed base coat and avoiding adhesion to the finish coat, which can soften on exposure to moisture and lose cohesion as the sealant extends and exerts a stress on the finish coat. Typically, a sealant that has a low modulus should be used. A low modulus sealant will have a lower stress at the sealant and substrate interface when the joint is in extension.



**FIG. 1 Sealant Butt Joint Seal (EIFS to EIFS)**

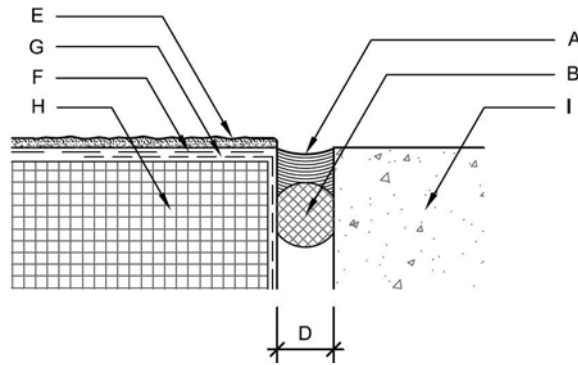


FIG. 2 Sealant Butt Joint Seal (EIFS to Dissimilar Substrates)

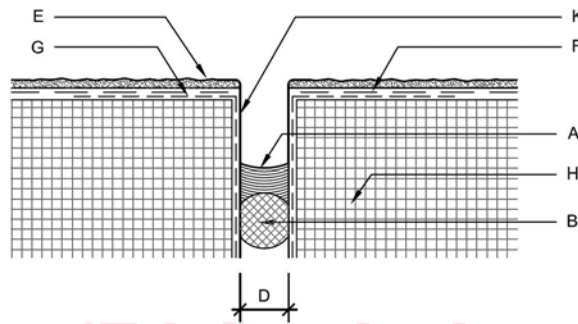


FIG. 3 Recessed Sealant Butt Joint Seal (EIFS to EIFS)

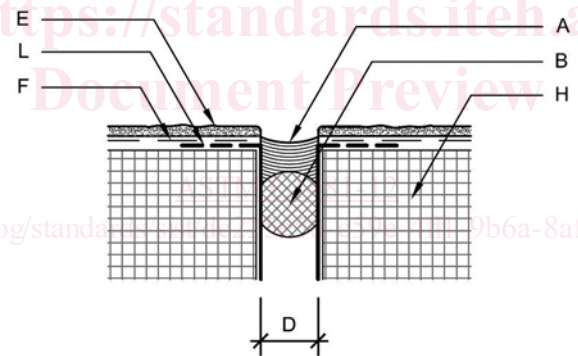


FIG. 4 Sealant Butt Joint Seal (Accessory to Accessory)

NOTE 1—References<sup>4-5-6</sup> provide information pertaining to the evaluation of various sealants with EIFS, factors affecting durability of sealants in contact with the finish coating of EIFS, and thermal movement analysis for panelized PB EIFS Claddings.

5.3 Due to the difficulty that can be encountered in performing remedial work for an EIFS sealant joint, the selected sealant should have very good environmental weathering characteristics so that it will last for the maximum useful lifetime of the sealant. Since an EIFS system is water-based, if it becomes saturated with rainwater or snow melt, the adhesion of a sealant to an EIFS base coat can be lessened. Information on sealant tensile adhesion properties when used with EIFS can be found in Test Method C1382. EIFS can be damaged by grinding or cutting during sealant removal, so it is a good candidate for use of a bridge type sealant joint or precured sealant, in a remedial application. This may be helpful since it does not require the removal of all the old or failed sealant but does change the appearance of the joint seal.

## 6. EIFS

6.1 *Joint Location and Configuration*—In an EIFS-clad building, sealant joints typically are required at the following locations:

<sup>4</sup> Yarosh, K. F., "Evaluation of Various Sealants with EIFS," *Science and Technology of Building Seals, Sealants, Glazing, and Waterproofing - Seventh Volume, ASTM STP 1334*, J. M. Klosowski, Ed., ASTM International, 1998, pp. 169-178.

<sup>5</sup> Kenney, R. J., and Piper, R. S., "Factors Affecting the Durability of Sealants in Contact with the Finish Coating of EIF Systems," *Science and Technology of Building Seals, Sealants, Glazing, and Waterproofing, ASTM STP 1168*, C. J. Parise, Ed., ASTM International, 1992, pp. 117-127.

<sup>6</sup> Williams, M. F., and Williams, B. L., "Thermal Movement Analyses for Panelized Polymer-Based Exterior Insulation and Finish System (PB EIFS) Claddings," *Science and Technology of Building Seals, Sealants, Glazing, and Waterproofing, ASTM STP 1168*, C. J. Parise, Ed., ASTM International, 1992, pp. 128-138.