Designation: C 1521 – 02a

Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints[1]

This standard is issued under the fixed designation C 1521; 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 describes field tests to determine the adhesive and cohesive characteristics of an installed sealant joint, by manually placing a strain on the sealant. The sealant to be tested shall be fully cured. The results of this method can be used in conjunction with other information to determine the overall performance of the sealant joint. The user of this practice should define the other parameters to be evaluated such as cleaning of the substrate, depth control of the sealant, sealant profile, etc. This method describes both nondestructive and destructive procedures.

1.2 The destructive procedure stresses the sealant in such a way as to cause either cohesive or adhesive failure of the sealant or cohesive failure of the substrate where deficient substrate conditions exist. The objective is to characterize the adhesive/cohesive performance of the sealant on the specific substrate by applying whatever strain is necessary to effect failure of the sealant bead. It is possible that the strain applied to the sealant bead may result in the failure of a deficient substrate before effecting a failure in the sealant.

NOTE 1—The destructive procedure requires immediate repair of the sealant bead. Appropriate materials and equipment should be available for this purpose.

NOTE 2—Sealant formulations may fail in cohesion or adhesion when properly installed, and tested by this method. The sealant manufacturer should be consulted to determine the appropriate guidelines for using this method.

1.3 The nondestructive procedure places strain on the sealant and a stress on the adhesive bond. Though termed nondestructive, this procedure may result in an adhesive failure of a deficient sealant bead, but should not cause a cohesive failure in the sealant. The results of this procedure should be either adhesive failure or no failure.

NOTE 3—The nondestructive procedure may require immediate repair of the sealant bead, if failure is experienced. Appropriate materials and equipment should be available for this purpose.

1.4 The committee with jurisdiction over this practice is not aware of any comparable practices published by other organizations or committees.

1.5 *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:*

C 717 Terminology of Building Seals and Sealants[2]

3. Terminology

3.1 *Definitions*—For definitions of terms used in this recommended procedure, see Terminology C 717.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *flap, n*—the term "flap" as used in this specification refers to a portion of an installed sealant bead that has been purposely cut along one substrate bond line and across the bead at two locations resulting in a portion of bead adhered along one substrate bond line.

3.2.2 *tail, n*—the term "tail" as used in this specification refers to a portion of an installed sealant bead that has been purposely cut along both substrate bond lines and across the bead at one location resulting in a portion of bead unadhered to the substrates but adhered to the remainder of the sealant bead.

4. Significance and Use

4.1 Many parameters contribute to the overall performance of a sealant application. Some of the most significant parameters are sealant bead size and configuration, joint movement, quality of workmanship, the quality of the adhesive bond, and the quality of the sealant material.

4.2 A sealant usually fails to perform as a weatherseal when it experiences cohesive or adhesive failure.

4.3 If a sealant bead fails, an evaluation of the total joint movement may be needed to determine if the joint sealant was strained beyond design or if the sealant failed within design parameters.

[1] This practice is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.30 on Adhesion.

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

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