



Standard Guide for Evaluating Failure of Structural Sealant Glazing¹

This standard is issued under the fixed designation C 1392; 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 guide covers a screening approach to detect failure (adhesive or cohesive) of a structural sealant in a structural sealant-glazed window, curtain wall, or other similar system. Presently, only a silicone-sealant that is specifically formulated, tested, and marketed as a structural glazing sealant is allowed for structural sealant glazing.

1.2 The values stated in either acceptable metric units or in other units shall be regarded separately as the standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

1.3 There are no ISO standards similar or equivalent to this ASTM 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.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 717 Terminology of Building Seals and Sealants²

3. Terminology

3.1 *Definitions:* Refer to Terminology C 717 for the following definitions and description of terms used in this guide: adhesive failure; cohesive failure; deflection; glazing; joint; lite; modulus; silicone sealant; structural sealant; structural sealant glazing; and substrate.

3.1.1 *qualified authority, n*—a person with a recognized degree or professional certificate and extensive knowledge and experience in the particular fields necessary for the evaluation program. The authority's qualification level that is necessary to specify the evaluation criteria and interpret the significance of the results depends upon the level of sophistication of the evaluation program. For example, if statistical and finite

element analyses are being incorporated into the evaluation program, then the authority should be knowledgeable and experienced in these areas.

3.1.2 *competent person, n*—a person experienced in the operation of the testing equipment and with an understanding of the construction of the wall system. This person may carry out the field testing under the supervision of the qualified authority.

4. Summary of Guide

4.1 This guide uses deflection measurements obtained from localized applied loads to determine locations of sealant failure in an installed structural sealant glazing system.

4.2 Initially, the deflection of an existing lite that is fully adhered by a structural sealant is measured when a discrete edge of the lite is loaded laterally. Subsequently, at a few selected lites, the structural sealant is cut intentionally to simulate failure, and the deflection of the lite is measured at the same lateral load. This provides the basis for determining during subsequent tests of other lites in the system whether the sealant has failed.

4.3 Additional lites are evaluated and their deflections measured to determine the extent of any structural sealant failure. Structural sealant failure is determined by comparing the measured deflections with the initial measurements of deflection with and without failed (intentionally cut) sealant.

5. Significance and Use

5.1 This guide suggests a simple means of evaluating the extent of any failure of a structural sealant in an installed structural sealant glazing system.

5.2 A qualified authority should specify the criteria described in Sections 8 and 9 and should interpret the results and judge their significance for the structural sealant glazing system.

5.3 The evaluation program measures deflection of loaded lites and does not measure directly any structural sealant failure. Consequently, the qualified authority interpreting the data should also evaluate the source of any increased deflection that is measured. Increased deflection may be due to structural sealant adhesive or cohesive failure, but may also be due to a

¹ 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 Jan. 10, 2000. Published April 2000. Originally published as C 1392 – 98. Last previous edition C 1392 – 98.

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