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Standard Guide for Remedying Structural Silicone Glazing¹

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1. Scope

1.1 This guide provides recommendations for remedying existing structural sealant glazing (hereinafter called SSG) installations in situ. Remedial work may be necessary when a lite of glass is replaced, for routine maintenance, or after distress is discovered. This guide focuses on large-scale remedies.

1.2 Committee C24 is not aware of any comparable standards published by other organizations.

2. Referenced Documents

2.1 ASTM Standards:

C 717 Terminology for Building Seals and Sealants²

C 1392 Guide for Evaluating Failure of Structural Sealant Glazing²

C 1394 Guide for In-Situ Structural Silicone Glazing Evaluation²

C 1401 Guide for Structural Sealant Glazing²

E 330 Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference³

E 997 Test Method for Structural Performance of Glass in Exterior Windows, Curtain Walls, and Doors Under the Influence of Uniform Static Loads by Destructive Method³

E 1233 Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential³

3. Terminology

3.1 *Definitions*—Definitions of the terms used in this guide are found in Terminology C 717.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *distress, n*—the individual or collective physical manifestations of a failure as perceivable problems. For structural sealant glazing, such distress may include sealant adhesive failure, sealant cohesive failure, shifting of a lite, loss of a lite, or water infiltration (see Guide C 1394).

3.2.2 *qualified person, n*—one with a recognized degree or professional registration and extensive knowledge and experi-

ence in the field of structural sealant glazing, and who is capable of design, analysis, and evaluation in the subject.

4. Significance and Use

4.1 Guidelines are provided for remedying existing SSG installations. Refer to Guide C 1401 for a complete discussion of proper SSG design, installation, and materials.

4.2 Due to the unlimited range of materials that may be used in a particular building, and because each design is unique, the information contained in this guide is general in nature.

4.3 This guide should not be the only reference consulted when designing remedies for SSG. For example, the local building code and the manufacturers' product literature for the actual materials used, if known, also should be considered. The sealant manufacturer(s) should be involved fully with the remedial design.

4.4 This guide is intended to be a resource, but it is not a substitute for experience and judgement in designing remedies for the specialized types of construction discussed. It is intended to be used in conjunction with other resources as an aid in remedying problems with existing SSG.

5. Introduction

5.1 There are numerous reasons that a building owner or manager, hereinafter referred to as owner, may choose to remedy an SSG system, including routine maintenance or to correct discovered deficiencies. Regardless of the reason that such a remedy is undertaken, it is recommended that the remedial design and construction be performed under the supervision of a qualified person.

5.2 It is essential to begin the remedial process with a comprehensive evaluation, in accordance with the guidelines established in Guide C 1394. The underlying cause of failure must be understood fully prior to implementing a remedy; otherwise, the failure may be repeated.

5.3 Based on the outcome of the evaluation, various remedies may be indicated. The potential remedies include, depending on the pervasiveness and the nature of the problem, the following:

5.3.1 Minor, isolated repairs, such as the replacement of an individual lite of glass, can be performed by a competent glazier trained in the proper installation of SSG. If the original SSG was properly done, then such minor repairs can be performed simply by duplicating the original procedures.

5.3.2 In-situ remedial work is necessary where pervasive

¹ This guide is under the jurisdiction of ASTM Committee C24 on Building Seals and Sealants and is the direct responsibility of Subcommittee C24.35 on Structural Sealants.

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² Annual Book of ASTM Standards, Vol 04.07.

³ Annual Book of ASTM Standards, Vol 04.11.