Designation: C1756 – 14

# Standard Guide for Comparing Sealant Behavior to Reference Photographs[1]

This standard is issued under the fixed designation C1756; 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 provides photographs that illustrate sealant behavior terms that have been defined by Committee C24.

1.2 When available, photographs that better illustrate these terms, or that illustrate additional terms defined by Committee C24, will be included in future editions of this standard. Photographs for consideration may be submitted to the committee using the form in Appendix X1.

1.3 The committee with jurisdiction over this standard is not aware of any comparable standards published by other organizations.

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:*[2]

C717 Terminology of Building Seals and Sealants

## 3. Terminology

3.1 The terms used in this guide are defined in Terminology C717.

## 4. Significance and Use

4.1 This guide is intended to be used in evaluating sealant conditions that occur in service, along with other diagnostic techniques in failure analysis. These standard reference photographs have been selected and approved through ASTM's consensus balloting process to illustrate terms defined by Committee C24.

4.2 Not all of the terms illustrated here are failures, and there are other failure mechanisms that affect sealants that are not discussed in this guide. This guide is intended to be one of a number of sources of information used in the evaluation of sealant behavior.

## 5. Reference Photographs

5.1 Figs. 1-9 present a standard reference photograph for each of the terms defined in Terminology C717, reprinted with their definitions.

## 6. Keywords

6.1 adhesion failure; chalking; cohesion failure; crazed; dirt pick-up; elastomeric joint sealant; fluid migration; reversion; rundown; sag

[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 onSpecifications, Guides and Practices.

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[2] 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.

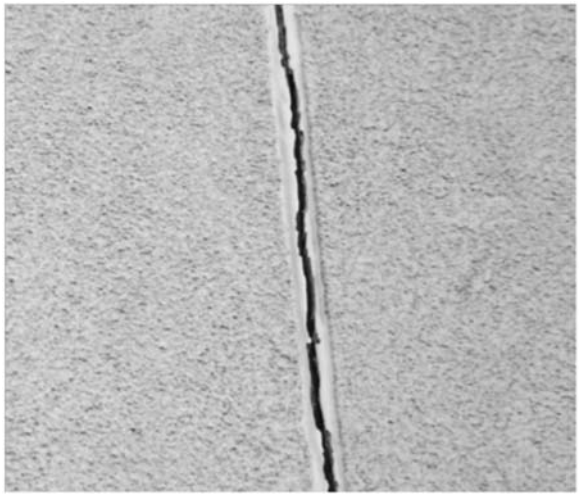
adhesion failure, *n—in building construction*, failure of the bond between a sealant and a substrate.

Discussion—This definition pertains to interfacial adhesion failure, a lack of bond at the interface between the materials. Interphasal adhesion failure, within the sealant or substrate near the interface, is less common and may appear to be inerfacial without the use of magnification.

**FIG. 1 Adhesion Failure**

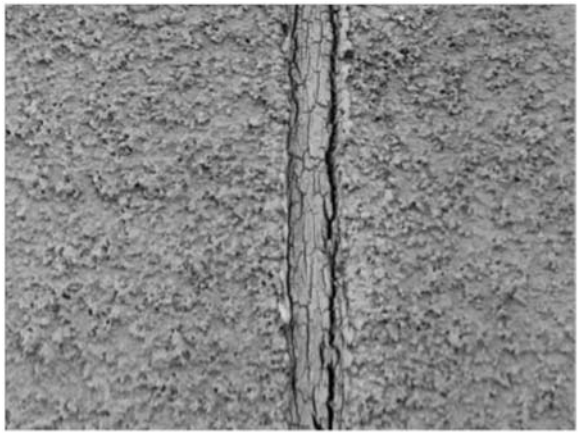
chalking, *v—in building construction*, formation of a powder on the surface of a sealant that is caused by the disintegration of the polymer or binding medium due to weathering.

**FIG. 2 Chalking**



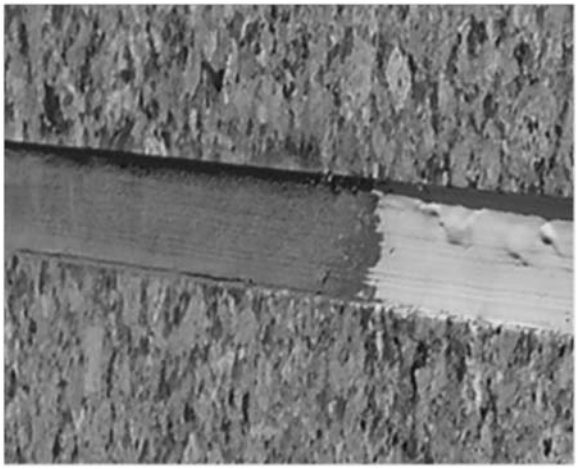
cohesive failure, *n—in building construction*, failure characterized by rupture within the sealant.

**FIG. 3 Cohesive Failure**



crazed, *adj—in building construction*, having a random network of cracks in a sealant surface which do not penetrate through the body of the material.

**FIG. 4 Crazed**



dirt pick-up, *n—in building construction*, soiling caused by a foreign material other than micro-organism growth that is deposited on, adhered to, or embedded into a sealant.

**FIG. 5 Dirt Pick-up**

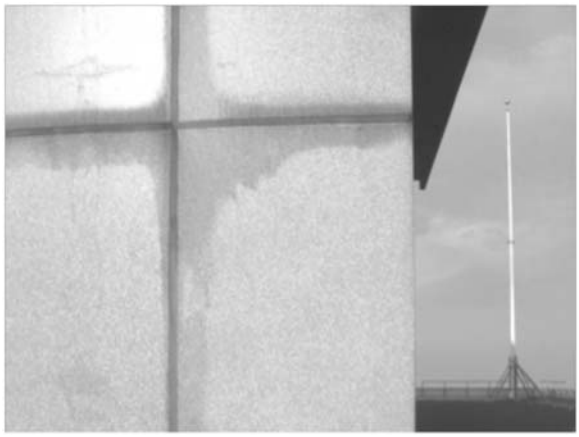
fluid migration, *n—in building construction*, accumulation of a fluid from a sealant on or in an adjacent material.

**FIG. 6 Fluid Migration**

reversion, *n—in building construction in joint sealing*, a loss of elastomeric properties and a decrease in durometer hardness of a seal or cured sealant following environmental exposure.

Discussion—Softening and the ability to permanently reshape a seal or sealant usually characterizes reversion. Depending on a specific seal or sealant formulation, high heat, ultraviolet radiation, or moisture (as a liquid or vapor) may cause reversion acting either alone or in combination. The seal and sealant industry is not in agreement on reversion causes.

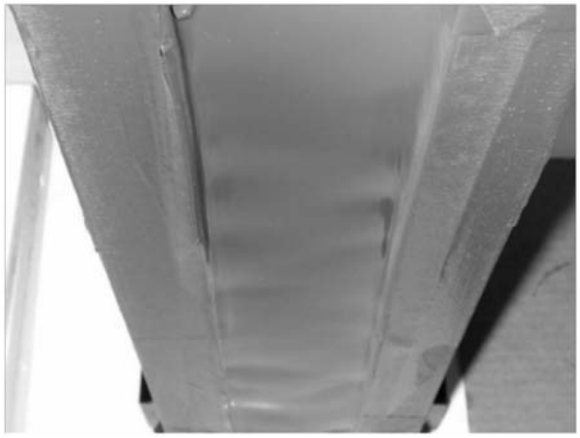
**FIG. 7 Reversion**



rundown, *n—in building construction*, discoloration of a building's surfaces by movement of a contaminant due to natural forces.

Discussion—Natural forces include wind, snow-melt, rain movement by surface tension, gravity, capillary action, kinetic energy, and air currents. Typical movement of contaminants includes fluid migration and blooming from a sealant, deposit of atmospheric pollutants, and chemical staining.

**FIG. 8 Rundown**



sag—*n—in building construction*, the gravity-induced downward flow of a sealant or glazing compund, resulting in an uneven thickness, when applied on a vertical surface.

**FIG. 9 Sag**

## APPENDIX

### X1. TRANSMITTAL FORM – SEALANT FAILURE PHOTO(S) FOR C1756

### INTRODUCTION

Please submit photographs of sealant failures with this transmittal from by email to the subcommittee C24.10 on Specifications, Guides and Practices, chairperson. Current email addresses are available on the roster on ASTM's web site.

### X1.1 Photographs

X1.1.1 Submit JPEG or TIFF files with resolution of at least 1200 × 960 pixels, grayscale. (Selected photos will be converted to TIFFs for publication.)

X1.1.2 Do not show brand names or other identifiable proprietary information in the photos (or state them on the form).

X1.1.3 Photographs of sealant failures in service are preferred to laboratory or mock-up conditions. However, staged or laboratory photographs will be considered.

X1.1.4 The person submitting these photos represents to ASTM that, to the best of his/her knowledge, information, and belief, there is not copyright or other limitation on ASTM's use of these photos, and he/she acknowledges that ASTM maintains the exclusive right to publish these phtotos.

### X1.2 Transmittal Form

X1.2.1 Complete as much of this form as possible (leave blanks if necessary), and submit it as an attachment to the same email message with the photos.

X1.2.2 Submit completed from in TIFF or PDF format.

X1.2.3 Multiple photographs may be submitted with the same transmittal form so long as they relate to the same condition; for example, multiple views of the same detail will allow the subcommittee to understand the condition and select the best representation.

Condition illustrated (i.e., adhesion failure): _____
Generic sealant chemistry, if known (i.e., 2-part urethane): _____
Substrates (i.e., brick masonry and anodized aluminum): _____
Approximate date sealant was installed, if known: _____
Data photo taken: _____
Location (city, state): _____
Weather exposure (i.e., north face under roof eave): _____
Observations and comments to be considered by subcommittee: _____
_____
_____
Form completed and photo(s) submitted by (printed name): _____
Submitted on (date): _____