



Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width¹

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1. Scope

1.1 This guide provides information on performance factors such as movement, construction tolerances, and other effects that should be accounted for to properly establish sealant joint size. It also provides procedures to assist in calculating and determining the required width of a sealant joint enabling it to respond properly to those movements and effects. Information in this guide is primarily applicable to single- and multi-component, cold-applied joint sealants and secondarily to precured sealant extrusions when used with properly prepared joint openings and substrate surfaces.

1.2 Although primarily directed towards the understanding and design of sealant joints for walls for buildings and other areas, the information contained herein is also applicable to sealant joints that occur in horizontal slabs and paving systems as well as various sloped building surfaces.

1.3 This guide does not describe the selection and properties of joint sealants (1), which are described by Guide C 1299, nor their use and installation, which is described by Guide C 1193.

1.4 The values and calculations stated in SI units are to be regarded as the standard. The values given in parentheses and inch-pound units are provided for information only. SI units in this guide are in conformance with IEEE/ASTM SI 10-1997.

1.5 The Committee having jurisdiction for this guide is not aware of any comparable standards published by other organizations.

1.6 *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 216 Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale)
- C 717 Terminology of Building Seals and Sealants

C 719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

C 794 Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants

C 920 Specification for Elastomeric Joint Sealants

C 1193 Standard Guide for Use of Building Sealants

C 1299 Standard Guide for Use in Selection of Liquid-Applied sealants

2.2 *American Concrete Institute (ACI) and American Society of Civil Engineers (ASCE):*

Building Code Requirements for Masonry Structures (ACI 530-88/ASCE 5-88) and Specifications for Masonry Structures (ACI 530.1-88/ASCE 6-88)

2.3 *Prestressed Concrete Institute (PCI):*

Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products, MNL-177-77

2.4 *American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE):*

Chapter 26, Climatic Design Information, Tables 1A, 1B, 2A, 2B, 3A, 3B, ASHRAE 1997 Fundamentals Handbook

2.5 *Brick Institute of America (BIA):*

Movement, Volume Changes, and Effect of Movement, Part I, Technical Notes on Brick Construction No. 18 Revised

2.6 *Institute of Electrical and Electronics Engineers, Inc. (IEEE) and ASTM:*

IEEE/ASTM SI 10-1997 Standard for Use of the International System of Units (SI): The Modern Metric System

3. Terminology

3.1 Definitions:

3.1.1 Refer to Terminology C 717 for definitions of the following terms used in this guide: band aid sealant joint, bond breaker, bridge sealant joint, butt joint, butt sealant joint, creep, cure, cured, elongation, expansion joint, fillet sealant joint, joint, joint filler, modulus, primer, seal, sealant, sealant backing, silicone sealant, spalling, substrate

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *coefficient of linear thermal movement*—an increase or decrease in unit length per unit change in material temperature of a material or assembly of materials.

¹ This standard 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.

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