

## GLOSSARY OF TERMS

1. **Abrasion Resistance.** Resistance to wear resulting from mechanical action of a surface.
2. **Accelerated Aging.** A set of laboratory conditions designed to produce in a short time the results of normal aging. Usual factors included are temperature, light, oxygen, and water.
3. **Accessory Materials.** Filler boards, bond-breakers and back-up materials and primers.
4. **Accelerator.** An ingredient used in small amounts to speed up the action of a curing agent. Sometimes used as a synonym for curing agent.
5. **Acetone.** Dimethyl ketone. A very volatile solvent. Particularly useful for cleaning metal substrates.
6. **Acrylic.** A group of thermoplastic resins or polymers formed from the esters of acrylic acid.
7. **Activator.** A material that, when added to a compound or curing agent, will speed up the curing mechanism.
8. **Adherend.** A body that is held to another body by an adhesive.
9. **Ahesion.** The clinging or sticking together of two surfaces. The state in which two surfaces are held together by forces at the interface.
10. **Adhesion, Mechanical.** Adhesion due to the physical interlocking of the adhesive with the surface irregularities of the substrate.
11. **Adhesion, Specific.** Adhesion due to molecular forces at the surface.
12. **Adhesive.** A substance capable of holding materials together by surface attachment.
13. **Adhesive Failure.** Type of failure characterized by pulling the adhesive or sealant loose from the adherend.
14. **Adsorption.** The action of a body in condensing and holding gases and other materials at its surface.
15. **Aggregate Finish.** Three various sizes of stone, rock, pebbles, etc. used in the make-up of a panel that would be placed on the façade of a building, not a smooth finish. The aggregate may be bonded together with concrete or mortar to give the desired or designed matrix.
16. **Aging.** The progressive change in the chemical and physical properties of a sealant or adhesive.
17. **Alligatoring.** Cracking of a surface into segments so that it resembles the hide of an alligator.
18. **Ambient Temperature.** Temperature of the air surrounding the object under construction.
19. **Application Life.** The period of time during which a sealant, after being mixed with a catalyst or exposed to the atmosphere, remains suitable for application.

20. **Articulated Joint.** A joint with movement limited by restraints.
21. **Back-up.** A compressible material used at the base of a joint opening to provide the proper shape factor (profile) in a sealant. This material can also act as a bond-breaker.
22. **“Band aid” Joint.** Sealant joint composed of a bond-breaker tape over the joint movement area with an overlay of sealant lapping either side of the tape sufficiently to bond well. Used where extreme movement occurs and conventional joint design is not possible, i.e., metal joints, deep V joints.
23. **Bead.** A strip of sealant applied to a joint.
24. **Bedding Compounds.** Any material into which another material such as a plate of glass or a panel, may be embedded for close fit.
25. **Bond** (verb). To join materials together using an adhesive.
26. **Bond-Breaker.** Thin layer of material such as tape used to prevent the sealant from bonding to the bottom of the joint.
27. **Bond breaker Tape**—Polyethylene or Teflon self-adhesive tape.
28. **Bond Face.** The part or surface of a building component that serves as a substrate for an adhesive or sealant.
29. **Bond Strength.** The force per unit area necessary to rupture a bond.
30. **Butt Joint.** A joint in which the structural units are joined to place the adhesive or sealant into tension or compression.
31. **Catalyst.** Substance added in small quantities to promote a reaction, while remaining unchanged itself. Sometimes referred to as the curing agent for sealants.
32. **Caulk** (noun). A material with a relatively low movement capability, usually less than  $\pm 10\%$ . Generally refers to oil-based caulks, and sometimes to butyl and acrylic latex caulks. ASTM C-24 proposes that all materials be termed sealants.
33. **Caulk** (verb). To fill the joints in a building with a material.
34. **Cellular Material.** A foamy material containing many small cells dispersed throughout the material. The cells may be either open or closed. Density is usually described in terms of pounds per cubic foot.
35. **Chalking.** Formation of a powdery surface due to weathering.
36. **Channel.** Three sided, U-shaped member in the sash or frame to receive glass or panel inserts.
37. **Checking.** The formation of slight breaks or cracks in the surface of a sealant.
38. **Chemical Cure.** Curing by chemical reaction. Usually involves the cross-linking of a polymer.
39. **Closed-Cell Foams.** Products not allowing air or water to pass through

because all the cells have complete walls.

**Coefficient of Expansion.** The coefficient of linear expansion is the ratio of the change in length per degree to the length at 0°C.

41. **Cohesion.** The molecular attraction that holds the body of a sealant or adhesive together. The internal strength of an adhesive or sealant.

42. **Cohesive Failure.** The failure characterized by pulling the body of a sealant or adhesive apart.

43. **Cold Flow.** The change of physical dimensions of a sealant after polymerization or original set has taken place.

44. **Compatible.** Two or more substances that can be mixed or blended together without separating, reacting, or affecting the material adversely. However, two materials such as a sealant and a tape gasket are compatible if there is no interaction between them and materials from one do not migrate into the other.

45. **Concave.** A bowl-shaped depression.

46. **Construction Joint.** A joint between different materials or between stages of construction, not necessarily intended to accommodate movement.

47. **Contraction Joint.** A joint between building components (e.g., newly cast concrete) where the only movement to be expected is due to the shrinkage of either or both components.

48. **Control Joint.** Formed, sawed, or tooled groove in a concrete structure to regulate the location and amount of cracking and separation resulting from the dimensional change of different parts of a structure.

49. **Compression Joint.** A joint in which the sealant is always subjected to a compression stress due to a closing tendency of the joint faces.

50. **Compression Seal.** A preformed seal that is installed by being compressed and inserted into the joint.

51. **Coping.** The cap or top of a wall which seals the wall cavity and is set on a slope to shed water.

52. **Compression Set.** The amount of permanent set that remains in a specimen after removal of a compression load. A change occurring in a sealant, when deformed, that prevents full recovery.

53. **Craze Cracks.** A maze of random pattern of fine cracks in the material surface caused by extreme cold, internal stresses, or lack of elasticity under external forces of weathering.

54. **Crazing.** A series of fine cracks that may extend through the body of a layer of sealant or adhesive.

55. **Creep.** The deformation of a body with time under constant load.

56. **Cure.** To set up or harden by means of a chemical reaction.

57. **Cure Time.** Time required to effect a cure at a given temperature.

58. **Curing Agent.** A chemical that is added to effect a cure in a polymer or sealant.
59. **Curtain Wall.** Type of construction in which walls of the building are non-structural walls usually made of glass/metal and glass, or other composite product panels. They can be of complex architectural design for aesthetics and visual appeal keeping elements out of the building.
60. **Depolymerization.** Separation of a complex molecule into simpler molecules. Also softening of a sealant by the same action. Sometimes known as “reversion” when describing depolymerization within polyurethane sealants.
61. **Durometer.** An instrument used to measure hardness or Shore hardness. Also may refer to the hardness rather than the instrument.
62. **Deform.** Change of dimension or shape produced by movement.
63. **Dynamic Joint.** A joint intended to accommodate expansion and contraction movements of the structure.
64. **Elasticity.** The ability of a material to return to its original shape after removal of a load.
65. **Elastomer.** A rubbery material that returns to approximately its original dimensions in a short time after a relatively large amount of deformation.
66. **Epoxy.** A resin formed by combining epichlorohydrin and bisphenols. Requires a curing agent for conversion to a plastic-like solid. Has outstanding adhesion and excellent chemical resistance.
67. **Exothermic.** A chemical reaction that gives off heat.
68. **Expansion Joint.** A joint intended to accommodate expansion and contraction movements of the structure.
69. **Extender.** An organic material used as a substitute for part of the polymer to lower the cost of a sealant or adhesive.
70. **Extensibility.** The ability of a sealant to stretch under tensile load.
71. **Extrusion Failure.** Failure that occurs when a sealant is forced too far out of the joint. The sealant may be abraded by dirt or folded over by traffic.
72. **Face Sealing.** Installation of a pre-cured sealant extrusion (tape) in various widths over failed joinery that can not be safely removed without damaging the substrate.
73. **Fatigue Failure.** Failure of a material due to rapid cyclic deformation.
74. **Field-Molded Sealant.** A bulk compound that takes its shape by being placed into a joint.
75. **Filler.** Finely ground material added to a sealant or adhesive to change or improve certain properties. If used to excess it cheapens the compound.
76. **Filler boards.** A material generally used in expansion joints primarily to provide support to the sealant so that it can resist pressure from the surface.

Filler boards are used to form the joint when one structural component is placed or cast against another. Commonly used materials in the manufacture of filler boards are impregnated fiber or cork boards. Fiber boards impregnated with asphalt are often capped with plastic tripping called “zip strips” as a compatible backer for sealants both non-sag and self-leveling (flowable).

77. **Fillet Seal or Fillet Bead.** A triangular-sectioned material used to seal a right-angled joint.
78. **Flashing.** Strips, usually of sheet metal, copper, lead, tin, or rubber, used to waterproof the junctions of building surfaces, such as roof peaks and valleys, and the junction of a roof and chimney.
79. **Gasket.** A cured elastic but deformable material placed between two surfaces to seal the union between the surfaces.
80. **Glazing.** Application of sealant in the process of installing glass in prepared openings in windows, doors, panels, screens, and partitions.
81. **Gunability.** The ability of a sealant to extrude out of a cartridge in a caulking gun.
82. **Hardener.** A substance added to control the reaction of a curing agent in a sealant or adhesive. Sometimes used as a synonym for curing agent or catalyst.
83. **Head.** The top member of a window or doorframe.
84. **Heel Bead.** Sealant applied at the base of channel. After setting light or panel and before the removable stop is installed, one of its purposes is to prevent leakage past the stop. The sealant must bridge the gap between the glass and frame.
85. **High Performance Sealants.** Sealants which are formulated to exhibit  $\pm 50\%$  joint movement.
86. **Horizontal Joint.** Any joint whose central axis lies primarily in the horizontal plane.
87. **Interface.** The common boundary surface between two substances.
88. **Isolation Joint.** A joint placed to separate concrete into individual structural elements or from adjacent surfaces.
89. **Jamb.** The side of a window, door opening, or frame.
90. **Joint (adhesive use).** The point at which two substrates are joined by an adhesive.
91. **Joint (sealant use).** The opening between component parts of a structure. A discontinuity in the surface at a predetermined position, which may be filled with a sealant or left unfilled.
92. **Joint Movement.** The difference in width of a joint opening between the fully open and fully closed positions.
93. **Laitance.** A thin, weak coating that sometimes forms on the surface of concrete, and is caused by water migration to the surface.

94. **Lap Joint.** A joint in which the component parts overlap so that the sealant or adhesive is placed into shear action between the joint faces.
- Latex Caulks.** A caulking material made using latex as the raw material. The most common latex caulks are polyvinyl acetate or vinyl acrylic.
96. **Loafing.** When a joint sealant is compressed and the sealant bead bulges outward in the appearance of a loaf of bread.
97. **Mastic.** A thick, pasty coating with putty- properties.
98. **Mil.** One-thousandth of an inch.
99. **Minimum Design Joint Width.** A realistic estimation of the width at which a joint should be constructed, obtained by applying manufacturing and constructional tolerances to the minimum theoretical joint width.
100. **Minimum Theoretical Joint Width.** The initial approximation of the width at which a joint should be constructed, obtained after consideration of the movements at the joint due to thermal, moisture, and other changes; and the movement capability of the sealant.
101. **Movement Joint.** See expansion joint.
102. **Mullion.** External structural member in a curtain-wall building. Usually vertical. May be placed between two opaque panels, between two window frames, or between a panel and a window frame.
103. **Necking.** Reduction in lateral dimension of a sealant under tensile stress.
104. **Needle Glazing.** The application of a small bead of sealant using a nozzle not exceeding ¼ inch in diameter.
105. **Non-movement Joint.** A joint designed for minimal or no movement.
106. **Non-sag sealant.** Sealant formulation having a consistency that will permit application in vertical joints without appreciable sagging or slumping at temperatures between 40°F and 100°F for most urethanes—with greater margins ± for silicone sealants.
107. **Oakum.** A fibrous material made from hemp of old ropes mixed with pitch used in caulking wooden ships.
108. **One-Part Sealant.** A chemically curing sealant containing a reactive polymer base, which cures upon exposure to the air and/or humidity. It requires no mixing.
109. **Open-Cell Foam.** A foam that will absorb water and air because the walls are not complete and run together.
110. **Open Time.** Time interval from when an adhesive or sealant is applied to when it becomes unworkable.
111. **Parapet.** A protective railing or low wall along the edge of a roof, balcony, or terrace; a low wall along the top of a door; the wall or top of an abutment extending from the bridge floor and designed to hold the backfill.
112. **Peel Test.** A test of an adhesive or sealant using one rigid and one flexible substrate. The flexible material is

- folded back (usually 180°) and the substrates are peeled apart. Strength is measured in pounds per inch of width.
113. **Perimeter (Peripheral) Joint.** A joint formed by the outer edge of one panel or material and the leading edge of another.
114. **Permanent Set.** The amount of deformation that remains in a sealant or adhesive after removal of a load.
115. **Pigment.** A coloring agent added to a sealant.
116. **Plasticizer.** A material that softens a sealant or adhesive by solvent action but is relatively permanent.
117. **Pointing.** Finishing of joints in a brick or stone wall normally using mortar as the fill.
118. **Polyethylene.** A straight-chain plastic polymer of ethylene used for containers, packaging, and the like.
119. **Pot Life.** See Working life.
120. **Preformed Sealant.** A sealant that is pre-shaped by the manufacturer before being shipped to the job site.
121. **Primer.** In building construction, a compatible coating applied to joint faces designed to enhance adhesion.
122. **Rabbit (of the joint).** Sealant Reservoir, cavity, indentation, channel, which sealant is placed.
123. **Raked out.** Cutting out of joints as in concrete or mortar in preparation for tuck pointing or caulking.
124. **Return.** The continuation of a molding, projection, member. Or cornice or the like in a different direction usually at a right angle (must be formed at the perimeter of the window).
125. **Resilience.** A measure of energy stored and recovered during a loading cycle. It is expressed in percent.
126. **Retarder.** A substance added to slow down the cure rate of a sealant or adhesive.
127. **Routing.** Removing old sealant from a joint by means of a rotating bit.
128. **Seal (noun).** ASTM definition is “A material applied in a joint or on a surface to prevent the passage of liquids, solids, or gases.”
129. **Sealant.** ASTM definition is “In building construction, a material which has the adhesive and cohesive properties to form a seal.” Sometimes defined as an elastomeric material with a movement capability greater than ±10%.
130. **Sealant Backing.** In building construction, a compressible material placed in a joint before applying a sealant.
131. **Sealer.** A surface coating generally applied to fill cracks, pores, or voids in the surface.
132. **Sealant reservoir.** Cavity, indentation, channel, or formed joint into which the sealant is placed.
133. **Sealing Tape.** ASTM definition is “A preformed, uncured or partially cured material which when placed in a joint,

has the necessary adhesive and cohesive properties to form a seal.”

**Self-leveling Sealant.** A sealant that is fluid enough to be poured into horizontal joints. It forms a smooth, level surface without tooling. Recommended application temperatures for polyurethane are between 40°F and 100°F.

135. **Shear.** The strain in or the failure of a structural member at a point where the lines of force and resistance are perpendicular to the member.
136. **Shear Joint.** A joint in which one opposing face may move parallel to the other.
137. **Shear Test.** A method of deforming a sealed or bonded joint by forcing the substrates to slide over each other. Shear strength is reported in units of force per unit area (psi).
138. **Shelf Life.** The length of time a sealant or adhesive can be stored under specific conditions and still maintain its properties.
139. **Shim.** In glazing, small blocks of composition, lead, neoprene, etc., placed under the bottom rabbet or channel after setting glass, thus distorting the sealant.
140. **Shore “A” Hardness.** The measure of firmness of a rubbery compound or sealant by means of a Durometer Hardness Gauge. An art gum eraser has a approximate Shore A hardness of 20 to 25. A rubber heel might be in the 80 to 90 range.

141. **Shrinkage.** Percentage weight loss of volume loss under specified accelerated conditions.
142. **Silicone Rubber.** A synthetic rubber based on silicon, carbon, oxygen, and hydrogen. Silicone rubbers are widely used a sealants and coatings.
143. **Skewed Joints.** Transverse joints in a pavement slab, which are placed at an angle and not perpendicular to the direction of traffic.
144. **Slump.** Same as sag.
145. **Solvent.** Liquid in which another substance can be dissolved.
146. **Spalling.** A surface failure of concrete, usually occurring at the joint. Splintering or chipping of a joint face or edge.
147. **Staining.** A change in color or appearance of masonry adjacent to the sealant. A transmigration of polymers from the installed sealant into the capillaries of the adjacent substrate.
148. **Static Joint.** Same as non-movement or non-working joint.
149. **Stopless Glazing.** The use of a sealant as a glass adhesive to keep glass in permanent position without the use of exterior stops.
150. **Strain.** Deformation per unit length. Example: Change in length divided by the original length of a test specimen. Strain is a dimensionless number. Strains in rubbery materials may be expressed in percent.

151. **Stress.** Force per unit area, usually expressed in pounds per square inch (psi).
152. **Stress Relaxation.** Reduction in stress in a material that is held at a constant deformation for an extended time.
153. **Structural Sealant.** A sealant used as an adhesive to bond two materials together, as in stopless glazing.
154. **Subgrade.** The earth or granular fill below a pavement slab.
155. **Substrate.** An adherend. The surface to which a sealant or adhesive is applied and must bond.
156. **Tackiness.** The stickiness of the surface of a sealant or adhesive.
157. **Tear Strength.** The load required to tear apart a sealant specimen. ASTM test method D-624 expresses tear strength in pounds per inch of width.
158. **Tensile Strength.** Resistance of a material to a tensile force that tends to pull it apart (stretch). The cohesive strength of a material expressed in psi.
159. **Tensile Stress.** Strain resulting from a stretching force.
160. **Thixotropic.** Non-sagging. A material that maintains shape unless agitated. A thixotropic sealant can be placed in a joint in a vertical wall and will maintain its shape or position without sagging during the curing process.
161. **Three-Part Sealant.** A chemically cured sealant supplied in three parts, one containing the reactive polymer base, one its curing agent, and on the color agent. Usually supplied in separate containers. Each part must be thoroughly mixed before use.
162. **Tooling.** The act of compacting and shaping a material in a joint.
163. **Toxic.** Poisonous or dangerous to humans by swallowing, inhalation, or contact resulting in eye or skin irritation.
164. **Ultimate Elongation.** Elongation at failure.
165. **Ultraviolet Light (UV).** Part of the light spectrum. Ultraviolet rays can cause chemical changes in rubbery materials.
166. **Urethane.** A generic term for ethylene carbonate. The material is used extensively for a base polymer in elastic sealants and waterproofing. Gives strength and flexibility that is sensitive to moisture.
167. **Vertical Joint.** A joint whose central axis lies primarily in the vertical plane.
168. **Viscosity.** A measure of the flow properties of a liquid or paste. Example: honey is more viscous than water.
169. **Vulcanization.** Improving the elastic properties of a rubber by chemical change, usually heat.
170. **Weep.** Opening in a cavity wall to collect moisture and dispense it or to put breathers (normally polyvinyl tubing) in sealant to relieve moisture from behind the sealant bead.

171. **Wind Loading.** Total force exerted by the wind on a structure or a part of a structure on a building component. Usually used in the form of test to determine how much wind a certain type of window or wall can withstand in order to meet certain criteria.
172. **Working Joint.** See expansion joint.
173. **Working life.** Period of time after mixing, during which a sealant or adhesive can be used.



Sealant Installation at the Seattle Convention Center