

# Contractor's Handbook



*A contractor's guide to Dow Corning construction products and procedures*

**DOW CORNING**



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This guide is intended to provide general information about using *Dow Corning*<sup>®</sup> brand weathersealing and structural sealant products. From product selection and joint design, to surface preparation and product application, this guide will familiarize you with the basic installation procedures necessary to optimize silicone's performance advantages.

Helpful estimating guides are included as well. And, because this is a general guide, each section includes references to more detailed procedure manuals available from Dow Corning (see page 16). Additional information on specific products and procedures is available via the Dow Corning website at [www.dowcorning.com/construction](http://www.dowcorning.com/construction).

### **Products covered in this guide include:**

Primers and Cleaners:

- Dow Corning*<sup>®</sup> 1200 Prime Coat
- Dow Corning*<sup>®</sup> 1205 Prime Coat
- Dow Corning*<sup>®</sup> P5200 Adhesion Promoter
- Dow Corning*<sup>®</sup> Primer C
- Dow Corning*<sup>®</sup> Primer P

Sealants:

- Dow Corning*<sup>®</sup> 756 SMS Building Sealant
- Dow Corning*<sup>®</sup> 790 Silicone Building Sealant
- Dow Corning*<sup>®</sup> 791 Silicone Weatherproofing Sealant
- Dow Corning*<sup>®</sup> 795 Silicone Building Sealant
- Dow Corning*<sup>®</sup> 995 Silicone Structural Glazing Sealant
- Dow Corning*<sup>®</sup> 999-A Silicone Building & Glazing Sealant
- Dow Corning*<sup>®</sup> Contractors Weatherproofing Sealant
- Dow Corning*<sup>®</sup> Parking Structure Sealant FC
- Dow Corning*<sup>®</sup> Parking Structure Sealant SL
- Dow Corning*<sup>®</sup> Parking Structure Sealant NS
- Dow Corning*<sup>®</sup> Tilt-up Weatherproofing Sealant

Preformed Silicone Sealant:

- Dow Corning*<sup>®</sup> 123 Silicone Seal

Weatherproofing Coating:

- Dow Corning*<sup>®</sup> AllGuard Silicone Elastomeric Coating

## Requirement Estimator

Joint Size D x W, inches	Linear Feet Sealed				
	1 gallon	10.3-fluid ounce cartridge	20-fluid ounce sausage	2-gallon pail	4.5-gallon pail
3/16 x 1/4	411	33	64	821	1848
3/16 x 3/8	274	22	43	548	1232
3/16 x 1/2	205	16	32	411	924
3/16 x 5/8	164	13	26	329	739
3/16 x 3/4	137	11	21	274	616
1/4 x 1/4	308	25	48	616	1386
1/4 x 3/8	205	16	32	411	924
1/4 x 1/2	154	12	24	308	693
1/4 x 5/8	123	10	19	246	554
1/4 x 3/4	103	8.3	16	205	462
1/4 x 1	77	6.2	12	154	346
3/8 x 3/8	137	11	21	274	616
3/8 x 1/2	103	8.3	16	205	462
3/8 x 5/8	82	6.6	13	164	370
3/8 x 3/4	68	5.5	11	137	308
3/8 x 1	51	4.1	7.9	103	231
3/8 x 1.5	34	2.7	5.3	68	154
3/8 x 2	25	2.0	3.9	51	115
3/8 x 3	17	1.4	2.6	34	77
1/2 x 1/2	77	6.2	12	154	346
1/2 x 5/8	62	5.0	9.7	123	277
1/2 x 3/4	51	4.1	8.0	103	231
1/2 x 1	39	3.1	6.1	77	173
1/2 x 1.5	25	2.0	3.9	52	115
1/2 x 2	19	1.5	3.0	38	86
1/2 x 3	12	1.0	1.9	26	58

Note: Actual volume of sealant used will depend on factors such as joint design, backer rod placement, tooling and waste at the job site.

## Volume Equivalents

25 cartridges = one 2-gallon (7.6-liter) pail

56 cartridges = one 4.5-gallon (17-liter) pail

Six 20-oz sausages = 1 gallon, less 8 oz

**Selector Guide**

Dow Corning® Product	Product Type/ Recommended Application	Neutral-Cure System	Durometer, Shore A, points	Modulus	Joint Movement, %	Tooling Time, minutes	All-Temperature Gunnability	Use-By Date
123	Silicone Seal/ Weatherproofing	N/A	25	Ultra- low	+200/ -75	N/A	N/A	N/A
756 SMS	SMS Building Sealant/Exterior Weatherproofing	Yes, 1-Part	30	Med.	±50	30	Yes	12 Months
790	Silicone Building Sealant/ Weatherproofing	Yes, 1-Part	15	Ultra- low	+100/ -50	10- 20	Yes	12 Months
791	Silicone Weather- proofing Sealant/ Weatherproofing	Yes, 1-Part	40	Med.	±50	15	Yes	12 Months
795	Silicone Building Sealant/Glazing, Weatherproofing	Yes, 1-Part	35	Med.	±50	20- 30	Yes	12 Months
995	Silicone Structural Glazing Sealant/ Structural Glazing, Glazing	Yes, 1-Part	40	Med.	±50	10- 20	Yes	18 Months
999-A	Silicone Building & Glazing Sealant/ Glazing	No, 1-Part	28	Med.	±25	5-10	Yes	27 Months
CWS	Silicone Building Sealant/ Weatherproofing	Yes, 1-Part	25	Med.	±25	>60	Yes	12 Months
Tilt-Up	Weatherproofing Sealant/ Weatherproofing	Yes, 1-Part	15	Low	±50	10- 20	Yes	12 Months
AllGuard	Elastomeric Coating/ Weatherproofing	Yes, 1-Part	38	N/A	N/A	N/A	N/A	12 Months
FC	Parking Structure Sealant/ Weatherproofing	Yes, 2-Part	60 Shore 00	Ultra- low	+100/ -50	N/A	Yes	18 Months
SL	Parking Structure Sealant/ Weatherproofing	Yes, 1-Part	50 Shore 00	Ultra- low	+100/ -50	N/A	Yes	12 Months
NS	Parking Structure Sealant/ Weatherproofing	Yes, 1-Part	15	Low	+100/ -50	10- 20	Yes	12 Months

<sup>1</sup>Dow Corning® 1205 Primer may be required on certain jobs due to variations inherent in cementitious substrates.

Key: N/A – Not applicable

1200 – Dow Corning® 1200 Prime Coat

1205 – Dow Corning® 1205 Prime Coat

P5200 – Dow Corning® P5200 Adhesion Promoter

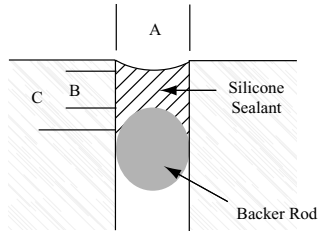
P – Dow Corning® Primer P

Warranty Term	Primer Required							Colors Available	Packaging
	Fluoropolymer Paint	Silicone Polyester Paint	Anodized Aluminum	Alodine-Treated Aluminum	Granite	Limestone	Concrete <sup>1</sup>		
10 Years	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11+ Custom	100-foot Rolls
20 Years	No	Test	Test	No	No	1200/P/P5200	P	7 + Custom	Sausages, Pails
20 Years	1200/P5200	1200/P5200	1200/P5200	1200/P5200	No	P5200	No	11 + Custom	Cartridges, Sausages, Pails
20 Years	No	No	No	No	No	1200/P/P5200	P	6	Cartridges, Sausages
20 Years	1200/P5200	No	No	No	No	1200/P/P5200	P	11 + Custom	Cartridges, Sausages, Pails
20 Years	No	No	No	No	No	N/A	N/A	Black Gray White	Cartridges, Pails, Drums
10 Years	1205	No	1200	1200	N/A	N/A	N/A	5 + Trans-lucent	Cartridges, Pails
5 Years	1200/P5200	No	No	No	No	1200/P/P5200	P	20	Cartridges, Sausages, Pails
5 Years	1200/P5200	1200/P5200	1200/P5200	1200/P5200	No	No	No	6	Sausages, Pails
10 Years	N/A	N/A	N/A	N/A	Field Test	Field Test	Field Test	55 + Custom	Pails
5 Years	N/A	N/A	Call DC	Call DC	N/A	N/A	1205	Gray	Sausages
5 Years	N/A	N/A	N/A	N/A	N/A	N/A	No	Dark Gray	Cartridges, Pails
5 Years	1200/P5200	1200/P5200	1200/P5200	1200/P5200	No	P5200	No	Gray	Cartridges, Pails

## Joint Movement and Design

### Joint Design for Proper Sealant Movement

1. Dimensions C and A must be at least  $\frac{1}{4}$ ".
2. Ratio of A:B should be 2:1 minimum.
3. Joint surface tooled concave.
4. Dimension B suggested maximum =  $\frac{3}{8}$ ". Never exceed  $\frac{1}{2}$ ".
5. Dimension A maximum = 4" for *Dow Corning 756, 790, 791 and 795 Silicone Sealants.*



For structural applications using *Dow Corning 795 and 995 Silicone Sealants*, please refer to the *Dow Corning Silicone Structural Glazing Manual*, Form No. 62-351.

### Joint Movement Indicator

Determination of joint movement is critical for designing and constructing effective joints. A joint movement indicator is a useful tool designed to gauge the amount of movement a joint experiences. Dow Corning has developed an easy-to-use device that lets you test virtually any sealed joint for expansion and compression, and to record such movement over any period of time. Additional information concerning the joint movement indicator is available in *Using the Dow Corning Joint Movement Indicator*, Form No. 61-637.

### Other Joint Design Considerations

- A minimum of  $\frac{1}{4}$ " sealant substrate bond is necessary to ensure adequate adhesion.
- A minimum  $\frac{1}{4}$ " wide weatherseal joint is required for proper joint performance.
- Silicone sealant should not be installed as deep as urethanes.
- One-part silicone sealants require atmospheric moisture to fully cure.
- A backer rod ~25 percent larger than the joint opening is recommended for weathersealing. Sizing differs with open- and closed-cell rods.
- For EIFS at window areas, use either *Dow Corning 791 Silicone Perimeter Sealant* or *Dow Corning 795 Silicone Building Sealant* with closed cell backer rod. For other EIFS-to-EIFS joints, use *Dow Corning 790 Silicone Building Sealant* with closed-cell or soft-type backer rod.
- A thin sealant joint ( $\frac{1}{4}$ "  $\pm$   $\frac{1}{8}$ " depth) will accommodate more movement than a thick joint. Sealants are designed to deliver optimum performance when the joints are shaped like an hourglass.
- As the sealant joint width becomes larger than 1", the depth should be held at approximately  $\frac{1}{2}$ ".

### Primer Selection

- *Dow Corning* 1200 Prime Coat – The most commonly recommended product for a wide variety of construction substrates. Available in clear and red.
- *Dow Corning* 1205 Prime Coat – Formulated to work with two-part sealants such as *Dow Corning* 756 Silicone Sealant or for difficult-to-adhere-to substrates.

### Approximate Primer Coverage Rate (ft<sup>2</sup>/gal)

	<i>Dow Corning</i> 1200 <u>Prime Coat</u>	<i>Dow Corning</i> 1205 <u>Prime Coat</u>
Porous Substrates .....	400	400
Non-Porous Substrates .....	800	800

### Surface Preparation and Sealant Application

The five basic steps for proper joint preparation and sealant application:

1. *Clean* – Joint surfaces must be clean, dry, dust- and frost-free.

In remedial applications, cut away the old sealant as close to the joint edges as possible. Clean by abrading with a wire brush, grinding, saw cutting or solvent cleaning. Blow out dust and other debris with *oil-free* compressed air (90 psi recommended with no moisture or oil in air).

For nonporous surfaces:

- Use a cloth with cleaning solvent such as isopropyl alcohol (IPA) to clean
- Wipe with a second, dry cloth

For porous surfaces:

- Use a cloth dampened with xylene
- Wipe to remove fingerprints
- Wipe with second, dry cloth

2. *Prime* – If necessary, apply primer to the clean surfaces.

- Wear rubber gloves when handling primer
- Mask sides of joint to keep primer off the face of substrates
- When using *Dow Corning* 1200 or 1205 Prime Coat, let the primer dry before applying sealant.
- On concrete, apply the primer in both directions to coat all irregularities and valleys

3. *Pack* – Install backer rod or bond breaker as required.

- Place backer rod after primer has dried
- Do not use fingers to install backer rod; place using a roller or other tool
- Place at a uniform depth
- Use open-cell polyurethane backer rod with *Dow Corning* 790 Silicone Building Sealant against painted or metal surfaces to promote cure from both sides of the joint

4. *Shoot* – Apply sealant by pushing the bead into the joint cavity.
  - Mask sides of joint
  - Start at the bottom of the joint and work up
5. *Tool* – Use **dry** tooling techniques to strike a flush joint and make certain the sealant has the proper configuration and fully contacts the joint walls.
  - Tool in both directions with a spatula
  - No wet tooling

Detailed cleaning procedures are outlined in the *Dow Corning Weatherproofing Sealant Guide*, Form No. 62-433, and the *Dow Corning Silicone Structural Glazing Manual*, Form No. 62-351.

### **Cold Weather Sealant Application Suggestions**

As temperatures drop below 4°C (40°F), good sealant application practice recommends caution because dew and frost that forms on substrates will interfere with obtaining good sealant adhesion. With nonporous surfaces, such as metal and glass, any moisture on the surface can be removed during the two-cloth solvent wipe surface preparation step. Experience has shown that using a cleaning solvent such as a 50/50 mixture of isopropyl alcohol (IPA) and water (typically used when cleaning *Kynar*- and *Kynar*-based paints and coated glasses) does a better job removing moisture than some other commonly used solvents. A higher concentration of IPA/water, such as 70/30, can also be used for non-sensitive substrates. The IPA/water wipe may need to be preceded by a more aggressive solvent wipe to ensure thorough cleaning.

With porous surfaces such as stone and masonry, surface moisture cannot be effectively or reliably removed. A variety of simple site tests can be performed to determine the surface is free of dew and frost or a moisture meter can be used. Generally it is best to apply sealant on the sunny, dry sides of a building after checking the surfaces for moisture/frost. The use of torches or hot air guns is NOT recommended, as moisture usually migrates back to the dried areas rapidly, much like a dry sponge placed in water. A substrated may be tested by applying a bead of sealant to the surface and scraping it off after one minute. If the surface appears to be wetted by the sealant, it is usually acceptable to proceed with caulking.

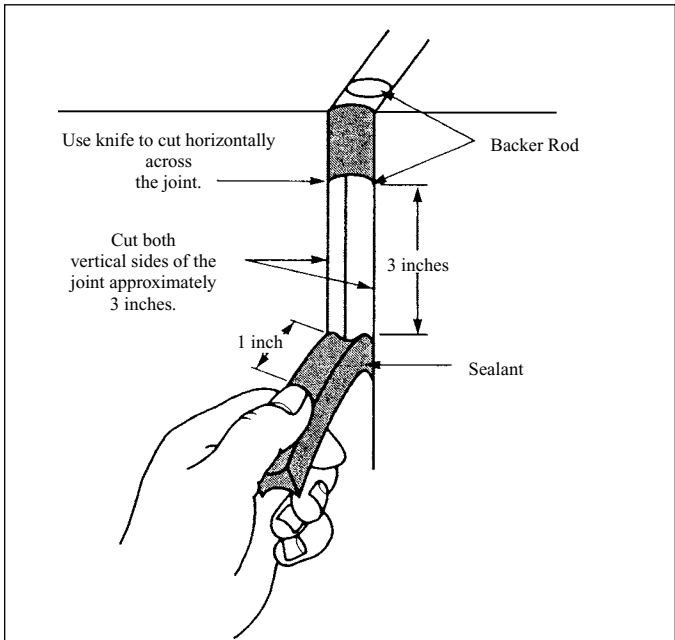
### **Equipment Cleaning**

Avoid using solvents for cleaning sealant application guns.

**Field Adhesion Testing**

To ensure the best performance of *Dow Corning* silicone sealants, a field adhesion test (also called a hand pull test) can be performed to verify proper sealant installation. Failure of this test may indicate improper joint cleaning, priming or sealant application.

**Field Adhesion Test – Weatherseal Joint**



**Test Criteria**

<b>Dow Corning® Sealant</b>	<b>Adhesion Requirement</b>
790 Building Sealant	Pull tab 3.0" (300% extension) without bond loss
756 SMS Building Sealant	Pull tab 1.5" (150% extension) without bond loss
791 Perimeter Sealant	Pull tab 1.5" (150% extension) without bond loss
795 Building Sealant	Pull tab until it breaks without bond loss

# Dow Corning® AllGuard

## Silicone Elastomeric Coating

### Substrate Compatibility

Dow Corning® AllGuard Silicone Elastomeric Coating is a one-component, pigmented, water-based silicone elastomer. It is designed to waterproof above-grade exterior masonry substrates, such as concrete block, fluted block, brick, stucco, synthetic stucco, poured concrete, precast concrete, Exterior Insulation Finish Systems (EIFS), and previously coated masonry substrates.

### Compatibility with Dow Corning Products

Dow Corning AllGuard Silicone Elastomeric Coating is compatible with the following Dow Corning brand products:

- Dow Corning 123 Silicone Seal
- Dow Corning 790 Silicone Building Sealant
- Dow Corning 791 Silicone Perimeter Sealant
- Dow Corning 795 Silicone Building Sealant

### Typical Properties

Specification Writers: Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

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#### As Supplied

ASTM D 2369	Solids Content	
	percent by weight .....	58.6
	percent by volume .....	50.1
ASTM D 1475	Specific Gravity, lb/gal .....	9.64
ASTM D 2196	Viscosity <sup>1</sup> , cps .....	63,000
ASTM D 1849	High Temperature Stability, (no change in viscosity), days .....	>28
ASTM D 3960	Volatile Organic Content <sup>2</sup> (VOC), g/L .....	<55

#### As Cured

ASTM D 2240	Durometer Hardness, Shore A .....	38
ASTM D 412	Tensile Strength, psi .....	>145
ASTM D 412	Elongation, percent .....	600
ASTM D 1653	Permeance, English perms .....	43.2
ASTM D 1737	Room Temperature Flex, 1/8" mandrel .....	Pass
ASTM C 711	Low Temperature Flex, 1/4" mandrel .....	Pass
ASTM D 3274	Fungus Resistance .....	No growth
ASTM D 3273	Mold Resistance .....	No growth
TT-C-555B	Wind-Driven Rain <sup>3</sup> , 98 mph .....	Pass
NCHRP-244	Chloride Ion Intrusion, effectiveness, percent .....	90
TT-C-555B	Alkali Resistance .....	Good

<sup>1</sup>Brookfield HAV, spindle #3, 2 rpm.

<sup>2</sup>VOC reported includes minus water calculation of ASTM D 3960.

<sup>3</sup>Measured on coating system with two coats of Dow Corning AllGuard Silicone Elastomeric Coating.

## Temperature and Humidity

*Dow Corning AllGuard Silicone Elastomeric Coating* can be applied from 5 to 38°C (40 to 100°F). Do not apply when the relative humidity is greater than 90 percent or when there is a threat of rain within 24 hours.

## Priming

Field adhesion testing must be performed to determine if primer is required (see page 12).

1. Apply at a rate of 300 sq ft/gallon using a ½ - ¾" synthetic nap roller, nylon bristle brush or airless sprayer.
2. Apply primer to the point of rundown.
3. Dry 30 minutes to 2 hours. Actual drying time will depend on temperature, humidity and wind conditions. Allow an additional 30 minutes to dry after dry to the touch.
4. Apply coating over primer at least 30 minutes after primer is dry to the touch, but within 72 hours. If the surface cannot be coated during this time, care should be taken to ensure the primed surface is free of dirt and debris before applying coating.

## Estimated Application Rate

(10-mil minimum dry film thickness)

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Texture/Substrate	Estimated Rate, sq ft/gal
Smooth (brick, precast concrete)	80-90
Fine (sand, #3 vermiculite)	70-80
Coarse (aggregate, split face block)	60-70

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## Coating

Two coats of *Dow Corning AllGuard Silicone Elastomeric Coating* are necessary to achieve the required 10-mil minimum dry film thickness to attain protection against through-water penetration and to qualify for a project-specific warranty.

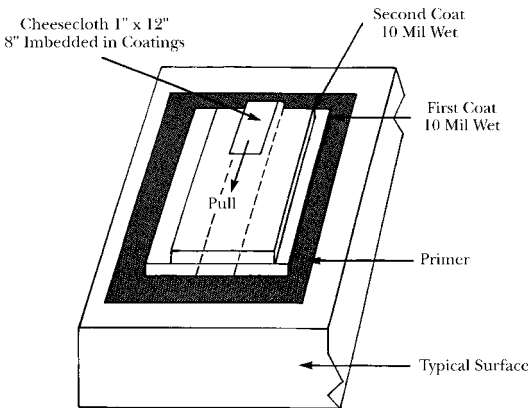
Apply the coating in a 10-mil wet thickness (see table above for estimated application rates; job-specific testing is recommended for best results). Two 10-mil wet coats will result in the required 10-mil dry coating thickness. Apply using a ¾ - 1½" nap, polyester or 50/50 polyester/wool blend roller cover, nylon bristle brush or airless sprayer. Always finish roller applications in the same direction to reduce visual surface texture differences.

Allow 2 to 4 hours drying time before applying the second coat.

Please refer to the *Dow Corning AllGuard Silicone Elastomeric Coating Application and Maintenance Guide*, Form No. 62-617, for more detailed information. Additionally, a *Wet Film Thickness Gauge* is available, Form No. 62-619.

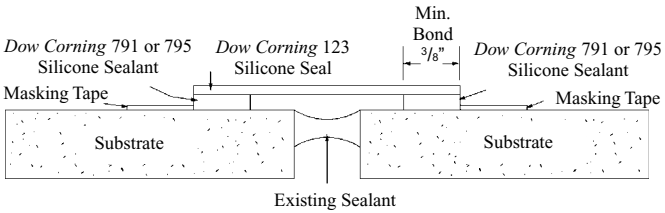
### **Adhesion Test Procedure**

1. Prepare surfaces per instructions (see *Dow Corning AllGuard Silicone Elastomeric Coating Application and Maintenance Guide*, Form No. 62-617, for specific preparation information).
2. Apply the primer and allow to dry.
3. Apply the first coat of *Dow Corning AllGuard Silicone Elastomeric Coating* at a rate of 10 to 12 mils wet film thickness. Imbed a cheesecloth strip (1" x 12") in the wet coating with a paint brush.
4. Apply the second coat over the cheesecloth at the same 10 to 12 mils wet film thickness and allow to fully cure for 7 to 14 days.
5. Test adhesion of the coating by pulling the uncoated part of the cheesecloth at a 180° angle at a slow, steady rate.
6. Inspect and note the percent cohesive failure (percent of coating material left on the wall surface). At least 80 percent of the coating should remain on the substrate. If the 80 percent retention is not achieved, reclean and test another suitable section. If necessary, contact Dow Corning Technical Service for further instruction.



# ***Dow Corning® 123 Silicone Seal*** *Contractor's Handbook*

## **Recommended Joint Design**

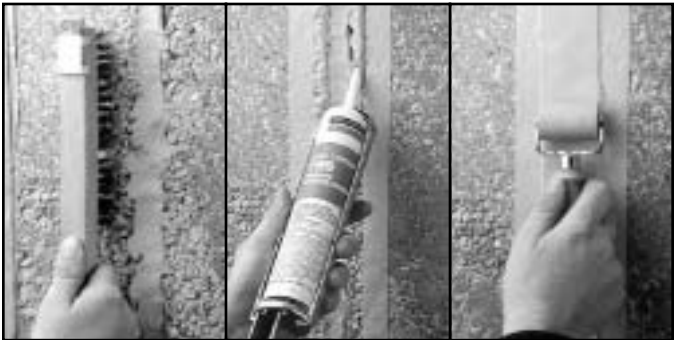


## **Preformed Custom Designs**

To complete the weatherproofing system and compliment *Dow Corning 123 Silicone Seal*, preformed two- and three-dimensional shapes are available as *Dow Corning® 123 Silicone Seal Custom Designs H.C.* Offering excellent aesthetics, the custom designs are offered in two formulations to provide customized performance for specific applications.

## **Installation**

*Dow Corning 123 Silicone Seal* must be bonded to clean, dry, frost-free, dust-free substrates using *Dow Corning 791 or 795 Silicone Sealant*. Field adhesion testing should be done to determine if primer is required for proper adhesion of *Dow Corning* sealant to the substrate.



*Dow Corning 123 Silicone Seal is easily applied: prepare the substrate around the failed sealant; apply Dow Corning 791 or 795 Silicone Sealant; and apply Dow Corning 123 Silicone Seal.*

**Preparation Work:** Porous surfaces should be cleaned with abrasion cleaning followed by blasts of oil-free compressed air. If high-pressure water cleaning is necessary, use caution to prevent water from entering the structure through the existing failed joint. Exterior surfaces must be visibly dry before installing *Dow Corning 123 Silicone Seal*.

Nonporous surfaces should be cleaned using a two-cloth solvent wipe (see page 7).

**Masking:** Apply masking tape in areas of high visibility to ensure good aesthetics.

**Application:** Apply a bead of *Dow Corning 791* or *795 Sealant* to each side of the joint according to the following schedule:

<u>Substrate</u>	<u>Coverage</u> <u>linear ft/tube</u>	<u>Bead</u> <u>Size</u>
Rough	20-40	1/4"
Smooth	70-120	1/8"

Note: Rough surfaces will require larger beads of sealant to seal the valleys of the substrate. The sealant should be applied approximately 1/4" inside the masking tape on both sides of the joint. Minimum bonded area must be at least 3/8".

Within 10 minutes of sealant application, press the extrusion into the sealant to wet the extrusion, substrate and sealant. A roller can be used to apply consistent pressure to ensure uniform contact.

Horizontal joints must be completed before application of vertical joints. Vertical joints should be lapped over the horizontal joints.

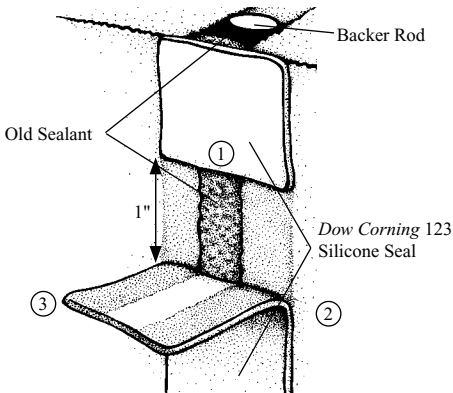
At the end of the joint, cut the extrusion with a razor knife.

**Clean-Up:** Remove masking tape and excess sealant.

### **Adhesion Test Procedure**

As a check for adhesion, a simple hand pull test may be run on the job site after *Dow Corning* 791 or 795 Silicone Sealant is fully cured (usually within 7-21 days).

1. Make a knife cut horizontally across the *Dow Corning* 123 Silicone Seal.
2. Make a vertical cut from the horizontal cut approximately 1" long down through the middle of the *Dow Corning* 791 or 795 Silicone Sealant on both sides of the joint opening.
3. Grasp the 1" piece of *Dow Corning* 123 Silicone Seal and pull at a 90° angle. Do not destroy the silicone seal; it can be repaired later.
4. The pass-fail criterion is cohesive failure of the *Dow Corning* 791 or 795 Silicone Sealant.



1. Horizontal cut across silicone seal
2. Vertical cut down through *Dow Corning* 791 or 795 Silicone Sealant
3. Grasp the silicone seal and pull at 90° angle, peeling down another 2"

### **Test Area Repair**

The silicone seal can be easily repaired by applying more sealant in the peeled off areas and rolling the seal back into the wet sealant. At the horizontal cut, apply sealant in this butt joint and smooth.

# Additional Information

For the most up-to-date information, including product data sheets and contact information, please visit [www.dowcorning.com/construction](http://www.dowcorning.com/construction).

## Literature

Literature is available by writing Dow Corning Customer Service, Midland, Michigan 48686-0994 or calling (989) 496-6000. Some suggested literature is listed below.

<u>Title</u>	<u>Form Number</u>
<i>Dow Corning AllGuard Silicone Elastomeric Coating Application and Maintenance Guide</i>	62-617
<i>Dow Corning Americas Technical Manual</i>	62-1112
<i>Dow Corning EIFS Restoration Guide</i>	62-510
<i>Dow Corning Parking Structure Sealants Installation Guide</i>	62-481
<i>Dow Corning Silicone Structural Glazing Manual</i>	62-351
<i>Dow Corning Weatherproofing Sealant Guide</i>	62-433
<i>Using the Dow Corning Joint Movement Indicator</i>	61-637
<i>Wet Film Thickness Gauge</i>	62-619

# Glossary of Terms

## A

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**Adhesion** – The degree of attachment or bonding of one substance to another.

**Alligatoring** – Mud cracking of the surface of a tar or asphalt roof. Has the appearance of alligator hide.

**Ambient Temperature** – Temperature of the surrounding air on all sides.

**Asphalt** – A dark brown to black bituminous sticky substance, solid or semisolid in consistency, found in natural beds and also obtained as a residue in petroleum refining. It consists chiefly of hydrocarbons. The principal ingredient in asphalt mastics.

## B

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**Breathable Coating** – A coating with a perm rating above about 0.5 perm. The opposite of a vapor retarder. The higher the perm rating, the more breathable the coating.

## C

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**Caulking** – A substance to stop and make watertight against leakage.

**Chalking** – Usually a grayish or white substance, dry, chalk-like residue, forming on the surface caused by weathering.

**Coal Tar** – Tar produced by the destructive distillation (heating and condensing to liquid or solid) of bituminous coal.

**Coating** – A liquid or semiliquid protective finish capable of application to thermal insulation or other surfaces, usually by brush or spray, in moderate thickness.

**Combustible** – Capable of uniting with air or oxygen in a reaction initiated by heating, accompanied by the subsequent evolution of heat and light. Capable of burning.

**Condensation** – The process of changing from a gas or vapor to a liquid.

**Contaminants** – Something that makes a surface or substance unclean, pollutes, soils, stains from an outside source.

**Coverage Rate** – Quoted either as square feet covered by a gallon (50 ft<sup>2</sup>/gal) or as gallons used per square (2 gal/square). (A square is 100 square feet.)

**Cure** – To change the properties of a plastic or resin by chemical reaction, which, for example, may be condensation, polymerization, or addition; usually accompanied by the action of either heat or catalyst or both, and with or without pressure.

**Cure Time** – The time required to complete the cure process.

## D

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**Degradation** – The deterioration of a substance caused by contact with its environment.

**Delamination** – The separation of the layers of material.

**Dirt Pickup** – The accumulation of dirt on the sealant surface during or after sealant cure.

**Dusting** – A condition that develops in one to seven days on the surface of uncoated and unprotected spray foam due to photo oxidation by ultraviolet light (sunlight). The ultraviolet causes the surface to break down and become a dust or powder, which impairs adhesion of coatings and blows away. When this occurs, the foam changes from its original light color (usually tan) to a rust or dark brown.

## E

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**Elastomer** – A material capable of elongating at least 100% and recovering its original dimensions.

**Elastomeric** – Displaying the properties of an elastomer.

**Elongation (stretch)** – Lengthening or stretching ability to accommodate movement.

**Expansion Joint** – A break in a surface to allow the material to contract and expand without causing joint damage. It may be a working joint to allow movement or a control joint to isolate a stress.

**F**

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**Film Thickness** – The thickness of a membrane, normally measured in mils.

**Flash Point** – The flash point of a liquid is the lowest temperature of the liquid at which it gives off vapor sufficient to form an ignitable mixture with the air near the surface of the liquid or within the vessel used.

**Fluid Migration** – The migration of fluids, such as plasticizers, unreacted polymer, or other liquid formulation additives into or onto porous or microporous substrates. It is a diffusion-controlled phenomenon, observed with all sealant types, including polysulfides, acrylics, polyurethanes, silicones and oil-based putties.

**Fluid Streaking** – The accumulation of dirt in water runoff channels on nonporous surfaces, aggravated by fluid migration from the sealant. Streaking is caused by the migration of free fluids to the sealant surface. Streaks can extend above and below a horizontal joint.

**G**

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**Grout** – Cement or mortar used to seal between precast concrete planks in a roof deck.

**Gypsum** – A fireproof board composed of calcium sulphate and fibers. Used as construction panels.

**H**

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**Hardness** – The relative resistance of a material to denting, scratching or bending.

**Hot Applied** – Or “hot mopped.” Refers to an asphaltic or tar material that must be heated in a kettle to melting and applied to the roof deck by mop or squeegee. Also referred to as “soup.” Different from a tar-based mastic, which is spread as supplied.

**Humidity, Relative** – The ratio of actual pressure of existing water vapor to the maximum possible (saturation) pressure of water vapor in the atmosphere at the same temperature, expressed as a percentage.

**I**

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**Impact Resistance** – Ability to withstand mechanical or physical abuse under severe service conditions. Resistance to blows, bumps and shocks incidental to use.

**L**

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**Laitance** – Surface material on top of concrete made up of fine cement and aggregate particles. It is loosely bonded and of low strength and must be removed by wire brushing before coating can be applied.

**Lightweight Concrete** – A nonstructural concrete using materials such as vermiculite or perlite as aggregate.

**M**

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**Mil** – A unit in measuring thickness, being 0.001 inch (British equivalent: Thou.) (Metric equivalent: 0.0254 mm).

**Monolithic** – Single form or single piece; formed or composed of material without joints or seams.

**O**

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**Organic** – Compounds consisting of carbon and generally hydrogen, with a restricted number of other elements such as oxygen, nitrogen, sulphur, phosphorous, chlorine, etc., but not containing atoms or molecules, generally known as metal.

**P**

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**Parapet** – A wall rising above the level of the roof, usually around its perimeter.

**Penetration** – Any assembly that goes through a roof deck such as a vent, exhaust fan, electrical feed-through, roof drain, stand pipe, etc.

**Perm Rating** – A measure of a material's ability to pass water vapor.

**Pinhole** – A very small hole or imperfection in a coating through which water or ultraviolet light can enter and cause damage.

**Polymer** – A chemical compound or mixture of compounds formed essentially of repeating structural units.

**Primer** – A chemical material that improves the bond of the sealant or coating to the substrate.

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**R**

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**R Factor** – Resistance of heat flow through a particular thickness of material.

**Reversion** – Urethane sealants lose their original rheological properties over time (i.e., their ability to actually seal joints).

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**S**

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**Scupper** – A hole in the wall to allow water to course through.

**Shore “A” Hardness** – Measure of firmness of a compound by means of a durometer hardness gauge.

**Shrinkage Crack** – Fine hairline cracks in the surface of newly cured concrete. Overall pattern looks like a crushed egg shell.

**Solids Content** – The percentage of nonvolatile matter that may be measured in volume or weight.

**Solvent** – Any substance, usually a liquid, that dissolves other substances. In coatings, normally a liquid organic compound used to make a fluid coating apply more freely.

**Square** – A 10-foot x 10-foot area, or 100 square feet.

**Structural Concrete** – Reinforced concrete with a compressive strength of at least 2500 psi.

**Structural Crack** – Concrete crack subject to little movement but that must be repaired since it can go through a full-slab thickness and leak.

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**T**

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**Tack-Free** – A film is considered tack-free when the finger, with a slight pressure, will not leave a mark. The surface will not be sticky.

**Tensile Strength** – The force per unit area that is applied at the time of rupture of the specimen. It is calculated by dividing the breaking force in pounds by the cross-section of the unstretched specimen in square inches.

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**U**

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**U Factor** – The overall heat transfer factor for a particular building component, such as a roof.

**UL Rating** – A flammability rating system for materials as tested by Underwriters Laboratories. UL classifies or lists materials that pass their specific tests.

**UV** – Ultraviolet radiation or sunlight.

**Urethane Sealant Reversion** – Sealants lose their original rheological properties over time (i.e., their ability to actually seal joints).

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**V**

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**Vapor Retarder** – Those materials or systems that retard the transmission of vapor under specified conditions.

**Vent** – A breather vent. A device put in a roof system to allow moisture vapor to escape.

**Viscosity** – The property of resistance to flow exhibited within the body of a material.

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**W**

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**Water Absorption** – The increase in weight of a test specimen expressed as a percentage of its dry weight after immersion in water for a specified time.





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