



## **DOWSIL™ Silicone Weather Barrier Transitions Guide Specification**

To support the growing demand for innovative, high-performance and sustainable structures, Dow is continuously strengthening its suite of construction solutions and services for building professionals. Silicon-based sealants, coatings, water repellents and concrete admixtures by Dow are designed to protect, strengthen, and preserve building materials in new construction and renovation projects. For example, silicone construction sealants have a life expectancy that is typically three times longer than organic sealants used in the same applications. They waterproof, remain flexible, and resist the effects of ultraviolet (UV) light and common temperature extremes.

Structural glazing and weatherproofing silicone products by Dow can contribute to building performance improvements by increasing energy performance and extending building life. When used in combination with other construction materials, use of silicones by Dow can contribute to earning LEED® (Leadership in Energy and Environmental Design) credits as administered by the U.S. Green Building Council.

Dow provides industry professionals with product information, technical expertise, design tools and other resources to create total building system solutions, based on decades of construction industry expertise, technical service, support resources, and customized construction services. Dow offers:

- Information regarding using silicone to achieve LEED credits
- Downloadable product selection guides and data sheets
- Application and technology development education
- Evaluations to ensure proposed applications meet Dow standards for warrantable performance
- AIA Continuing Education programs

*Working with leading architects and contractors, Dow has contributed to innovative designs such as the Solano County Government Center in Fairfield, CA. Solano County's first LEED-certified building. The building incorporates significant sustainable design/build elements, including extensive use of solar electricity and an award-winning co-generation plant. Silicone sealants by Dow complement its energy-efficient technologies with contributions to its weatherproofing and life-cycle.*

Dow provides performance-enhancing solutions to serve the diverse needs of more than 25,000 customers worldwide. A global leader in silicones, silicon-based technology and innovation, Dow offers more than 7,000 products and services via the company's DOWSIL™ and XIAMETER™ (xiameter.com) brands. More than half Dow Consumer Solutions' annual sales are outside the United States.

We recommend you consult with your Dow construction technical representative, who can be contacted through:  
The Dow Chemical Company, Midland MI; (877) SEALANT ((877) 732-5268); email: [construction@dow.com](mailto:construction@dow.com);  
[dow.com/construction](http://dow.com/construction).

Products from Dow appear in the following CSI Master Format specifications sections:

- Section 07 01 91 Joint Sealant Rehabilitation and Replacement
- Section 07 92 00 Joint Sealants
- Section 08 85 00 Glazing Sealants
- Section 09 96 53 Silicone Elastomeric Coatings
- Section 32 13 73 Concrete Paving Joint Sealants

## SECTION 07 25 13 – WEATHER BARRIER TRANSITIONS

Specifier: This document can be used as a stand-alone narrow scope section, or its components can be added to one or more of the Related Sections and other Sections as apply to a particular project.

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. Section includes:
1. Weather barrier transitions serving as a component of building air- and moisture- barrier systems.
- B. Related Sections:
1. Section 07 27 00 "Air Barriers."
  2. Section 07 92 00 "Joint Sealants."
  3. Section 08 41 13 "Aluminum-Framed Entrances and Storefronts."
  4. Section 08 44 13 "Glazed Aluminum Curtain Walls."
  5. Section 08 51 13 "Aluminum Windows."
  6. Section 08 85 00 "Glazing Sealants" for sealants for glazing installation, glazing framing perimeters, and structural glazing.

#### 1.2 REFERENCE STANDARDS

Specifier: If retaining References Article, edit to include only those references in edited section.

- A. ASTM International (ASTM): [www.astm.org](http://www.astm.org)
1. ASTM D 412 - Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
  2. ASTM D 624 - Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
  3. ASTM D 2240 - Test Method for Rubber Property - Durometer Hardness.
  4. ASTM E 283 - Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
  5. ASTM E 331 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

#### 1.3 QUALITY ASSURANCE

- A. Mockups: Provide weather barrier transition application within mockups required in other sections identical to specified joint sealants and installation methods.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURER

Specifier: Retain option for substitutions below when required for project.

- A. Basis-of-Design Product: Provide weather barrier transition products manufactured by The Dow Chemical Company, Midland MI; (877) SEALANT (877) 732-5268); email: [construction@dow.com](mailto:construction@dow.com); website: [dow.com/construction](http://dow.com/construction) [or comparable products of other manufacturer approved by Architect in accordance with Instructions to Bidders and Division 01 General Requirements].

## 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants and accessory materials that are compatible with one another, and with materials in close proximity under use conditions, as demonstrated by sealant manufacturer using ASTM C 1087 testing and related experience.
- B. Joint Sealant Standard: Comply with ASTM C 920 and other specified requirements for each liquid-applied joint sealant.

## 2.3 LIQUID JOINT SEALANTS

Specifier: **DOWSIL™ 758 Silicone Weather Barrier Sealant** is a one-component, neutral-cure silicone sealant for above-grade weathersealing joints with compatibility and strong adhesion to a wide array of common construction materials, including peel-and-stick window flashings, building wraps, polyolefins, and PVCs for both new and remedial construction.

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**\_\_: ASTM C 920, Type S, Grade NS, Class 25, for Use NT; SWRI validation.
  - 1. Basis of Design Product: **DOWSIL™ 758 Silicone Weather Barrier Sealant**.
  - 2. Hardness, ASTM D 2240: 45 durometer Shore A.
  - 3. Volatile Organic Compound (VOC) Content: 61 g/L maximum
  - 4. Color: White

Specifier: **DOWSIL™ 791 Silicone Weatherproofing Sealant** is a one-component, medium-modulus, neutral-cure silicone sealant for general glazing and above-grade weathersealing in curtainwalls and building facades for both new and remedial construction. Product complies with GSA Commercial Item Descriptions CID A-A-272A and CID A-A-1556.

- B. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**\_\_: ASTM C 920, Type S, Grade NS, Class 50, for Use NT, G, M, and A; SWRI validation.
  - 1. Basis of Design Product: **DOWSIL™ 791 Silicone Weatherproofing Sealant**.
  - 2. Hardness, ASTM D 2240: 30 - 40 durometer Shore A, minimum
  - 3. Volatile Organic Compound (VOC) Content: 30 g/L maximum
  - 4. Color: [As selected by Architect from manufacturer's full line of not less than 6 colors].

Specifier: **DOWSIL™ 778 Silicone Liquid Flashing** is a one-component, medium-modulus, neutral-cure silicone sealant for both new and remedial construction with weather and air barriers.

- C. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**\_\_: Type S, Grade NS, Class 25, for Use NT.
  - 1. Basis of Design Product: **DOWSIL™ 778 Silicone Liquid Flashing**.
  - 2. Hardness, ASTM D 2240: 40 durometer Shore A, minimum
  - 3. Volatile Organic Compound (VOC) Content: <50 g/L maximum

## 2.4 WEATHER BARRIER TRANSITION

Specifier: **DOWSIL™ Silicone Transition Strip (STS)** is a silicone sealant-compatible flexible membrane interface between a variety of air/vapor barrier materials and window, storefront, and curtainwall opening frames. It permanently accommodates the differential thermal movement between wall systems and metal frames, maintaining airtight- and watertight-connections necessary in high performance buildings. Coordinate with Division 07 air barrier section and Division 08 opening sections. Recommended silicone sealants for installing DOWSIL™ STS include: DOWSIL™ 758 Silicone Weather Barrier Sealant; DOWSIL™ 791 Silicone Weatherproofing Sealant; and DOWSIL™ 795 Silicone Building Sealant:

- A. Silicone Elastomer Weather Barrier Transition: Highly flexible clear flashing and transition strip and pre-molded corners for bonding with silicone sealant to weather barrier substrates and to adjacent curtain wall, storefront, and window frames and other transition substrates.

1. Basis of Design Product: **DOWSIL™ Silicone Transition Strip (STS)**.
2. Hardness, ASTM D 2240: 50 - 60 durometer Shore A.
3. Volatile Organic Compound (VOC) Content: 0 g/L
4. Color: Translucent
5. Air Infiltration, ASTM E 283: Maximum 0.025 cfm/sq. ft. (0.127 L/s per sq. m) at 6.24 lbf/sq. ft. (300 Pa).
6. Water Penetration under Static Pressure, ASTM E 331: None at 15 lbf/sq. ft. (720 Pa).
7. Movement Capability: Not less than plus 200, minus 75 percent.
8. Tensile Strength, ASTM D 412: Not less than 800 psi (5.5 MPa).
9. Tear Strength, ASTM D 624: Not less than 200 psi (16 kN/m).
10. Elongation, ASTM D 412: Not less than 400 percent.
11. Bonding Sealant: Manufacturer's recommended neutral-curing silicone.

Specifier: Air infiltration and water penetration testing above reflects performance of DOWSIL™ STS when installed according to manufacturer's installation instructions as perimeter flashing isolated on test window unit in sheathed wall. Test report copies available from manufacturer.

## 2.5 ACCESSORIES

- A. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Proceed with joint sealant work once conditions meet sealant manufacturer's recommendations.

### 3.2 PREPARATION

- A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer.
  1. Remove laitance, form-release agents, dust, and other contaminants.
  2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.

### 3.3 SEALANT APPLICATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Masking: Mask adjacent surfaces to prevent staining or damage by contact with sealant or primer.
- B. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.
- C. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.
  1. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.
  2. Using tooling agents approved by sealant manufacturer for application.
- D. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.

1. Remove masking tape immediately after tooling joint without disturbing seal.
2. Remove excess sealant from surfaces while still uncured.

### 3.4 WEATHER BARRIER TRANSITION APPLICATION

- A. Preparation: Prepare field of weather barrier surface and surface of adjacent substrate in accordance with sealant manufacturer's written instructions. Perform field adhesion testing to determine need for application of primer. Clean surfaces to dust free, and perform solvent wipe where recommended.
- B. Application: Apply bead of recommended liquid joint sealant to each side of joint in bead size recommended by manufacturer. Press transition extrusion into sealant using roller to ensure uniform and complete contact. Lap vertical and horizontal joints as indicated in manufacturer's instructions. Trim transition material. Remove excess sealant.

### 3.5 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Perform adhesion tests in accordance with manufacturer's instructions and with ASTM C 1193, Method A.
  1. Perform [5] tests for the first [1000 feet (300 m)] of joint length for each kind of sealant and joint substrate, and one test for each [1000 feet (300 m)] of joint length thereafter or 1 test per each floor per building elevation, minimum.
  2. For sealant applied between dissimilar materials, test both sides of joint.
- B. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.
- C. Submit report of field adhesion testing to Architect indicating tests, locations, dates, results, and remedial actions taken.

END OF SECTION

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