



DOWSIL™ Silicone Joint Sealants Rehabilitation and Replacement 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;
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

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Rehabilitation and replacement of exterior elastomeric weatherproofing sealants

B. Related Sections:

1. *Division 01 Section "Sustainable Design Requirements" for additional requirements, including LEED product and documentation requirements.*
2. Section 07 92 00 "Joint Sealants" for requirements for new joint sealant applications.
3. Section 08 85 00 "Glazing Sealants" for sealants for glazing installation, glazing framing perimeters, and structural glazing.
4. Section 09 96 53 "Silicone Elastomeric Coatings" for water-repelling liquid silicone elastomeric coatings for exterior surfaces.
5. Section 32 13 73 "Concrete Paving Joint Sealants" for traffic grade joint sealants for concrete paving and parking decks.

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 :

1. ASTM C 661 - Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer
2. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
3. ASTM C 920 - Specification for Elastomeric Joint Sealants.
4. ASTM C 1135 - Test Method for Determining Tensile Adhesion Properties of Structural Sealants
5. ASTM C 1184 - Standard Specification for Structural Silicone Sealants.
6. ASTM C 1193 - Standard Guide for Use of Joint Sealants.
7. ASTM C 1248 - Test Method for Staining of Porous Substrate by Joint Sealants.
8. ASTM C 1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
9. ASTM D 2240 - Standard Test Method for Rubber Property - Durometer Hardness.
10. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.

B. Sealant, Waterproofing, and Restoration Institute (SWRI): www.swrionline.org

1. SWRI Validation Program.

C. U. S. Environmental Protection Agency (EPA): www.epa.gov

1. 40 CFR 59, Subpart D: National Volatile Organic Compound Emission Standards for Architectural Coatings.

D. US Green Building Council (USGBC): www.usgbc.org

1. Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.
- B. Preinstallation Conference: Conduct conference at Project Site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of joint sealant product specified, including:
 - 1. Preparation instructions and recommendations.
 - 2. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.
- B. Joint Sealant Schedule: Indicate joint sealant location, joint sealant type, manufacturer and product name, and color, for each application. Utilize joint sealant designations included in this Section.
- C. *LEED Submittals:*

Specifier: Section specifies weatherproofing (exterior) sealants only, for which no LEED-related documentation from contractor is required. If section is used on LEED project and has interior sealants added, add related IEQ credit documentation requirements.

Note that LEED EB exterior management plan requirements may include information on performance and condition of exterior building sealants.

- D. Samples for Color Selection: For each joint sealant type.
- E. Samples for Verification: For each exterior joint sealant product, for each color selected.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified applicator.
- B. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- C. Preconstruction compatibility and adhesion test reports
- D. Preconstruction field-adhesion test reports
- E. Field quality control adhesion test reports.
- F. Warranty: Sample of unexecuted manufacturer and installer special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced Installer equipped and trained for application of joint sealants required for this Project with record of successful completion of projects of similar scope.
- B. Single Source Responsibility: Provide glazing sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.

Specifier: Consult Dow representative for recommendations on the extent of preconstruction testing and number of samples required for project.

- C. Preconstruction Compatibility, Staining, and Adhesion Testing: Submit [four] samples of material that will be in contact with or affect joint sealants. Test sealants with substrate materials using manufacturer's standard test method to determine requirements for joint preparation, including cleaning and priming. Test sealants with related materials to verify compatibility.
- D. Preconstruction Field-Adhesion Testing: Prior to installing joint sealants, field test adhesion to joint substrates using ASTM C 1193 Method A or method recommended by manufacturer. Verify adhesion is adequate. Modify joint preparation recommendations for failed joints and re-test. Submit written report to Architect.
- E. Mockups: Provide glazing sealant [and weather barrier transition] application within mockups required in other sections identical to specified sealants and installation methods.

1.7 FIELD CONDITIONS

Specifier: Existing joint sealant and backer materials may be found to contain hazardous materials such as asbestos or PCBs. Consider retaining or modifying one of two paragraphs below describing contractor's responsibilities related to the presence of hazardous materials on the project site, in consultation with Owner and with firm risk management advisors.

First paragraph is appropriate when affected materials have been tested by Owner and found to not contain hazardous materials; second paragraph is for use when work includes removal of materials that contain or may contain hazardous materials.

- A. Hazardous Materials: Testing has indicated that materials to be removed or rehabilitated do not contain hazardous materials.
 - 1. If suspected hazardous materials are encountered, do not disturb materials, and immediately notify Architect and Owner.
- B. Hazardous Materials: Testing has indicated that materials to be removed or rehabilitated may contain hazardous materials.
 - 1. Owner will remove hazardous materials prior to start of work.
 - 2. Hazardous material remediation is specified elsewhere in the Contract Documents.
 - 3. Do not disturb hazardous materials or items suspected of containing hazardous materials except as part of remediation processes specified elsewhere in the Contract Documents.

1.8 WARRANTY

Specifier: Coordinate Installer's warranty provisions with requirements for Contractor's period for correction of work, which is frequently extended from one year to two or more years for components of the exterior weather envelope.

- A. Special Installer's Warranty: Original statement on Installer's letterhead in which Installer agrees to repair or replace joint sealants that demonstrate deterioration or failure within warranty period specified.
 - 1. Warranty Period: [Two] years from date of Substantial Completion.

Specifier: Verify warranty provisions for specified products. Dow typically offers warranty periods of up to 20 years for exterior silicone sealants materials.

- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that demonstrate deterioration or failure under normal use within warranty period specified.
 - 1. Warranty Period for Silicone Sealants: [20] years date of Substantial Completion.

- C. Warranty Conditions: Special warranties exclude deterioration or failure of joint sealants in normal use due to structural movement resulting in stresses on joint sealants exceeding sealant manufacturer's written specifications, joint substrate deterioration, mechanical damage, or normal accumulation of dirt or other contaminants.

PART 2 – PRODUCTS

2.1 MANUFACTURER

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

- A. Basis-of-Design Product: Provide joint sealant products manufactured by The Dow Chemical Company, Midland MI; (877) SEALANT, (877) 732-5268; email: construction@dow.com; website: 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, with joint substrates, and with materials in close proximity under use conditions, as demonstrated by sealant manufacturer by testing and related experience.
- B. Joint Sealant Standard: Comply with ASTM C 920 and other specified requirements for each liquid-applied joint sealant.
- C. Stain Test Characteristics: Where sealants are required to be nonstaining, provide sealants tested per ASTM C 1248 as non-staining on porous joint substrates indicated for Project.

Specifier: ASTM C 920 Joint Sealant Use Types, Grades, Classes, and Uses that are used in reference specifications below are as follows:

Type S: Single component
Type M: Multi-components
Grade P: Pourable
Grade NS: Non-sag
Class XX: Movement capability, percent
Class XX/YY: Movement capability, percent, expansion/contraction
Exposure Use T: Traffic
Exposure Use NT: Non-traffic
Substrate Use G: Glass
Substrate Use M: Mortars
Substrate Use A: Aluminum
Substrate Use O: Other

Specifier: Joint sealants listed in the WEATHERPROOFING LIQUID SILICONE JOINT SEALANTS article are traffic and non-traffic-bearing, non-sag silicone joint sealants with varying chemistry. Dow's product data sheets provide detailed guidance on the recommended applications for these joint sealants.

2.3 WEATHERPROOFING LIQUID SILICONE JOINT SEALANTS

DOWSIL™ 790 Silicone Building Sealant is a one-component, ultra-low modulus, neutral-cure silicone rubber sealant for above-grade high movement expansion and control joints of most building materials and for both new and remedial construction. Product is also used in certain traffic bearing applications. Product complies with GSA Commercial Item Descriptions CID A-A-272A and CID A-A-1556. Product is acceptable for use in certain UL fire-resistance-rated designs; refer to www.ul.com for list and description of approved designs.

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**__: ASTM C 920, Type S, Grade NS, Class 100/50, for Use T, NT; SWRI validation.
1. Basis of Design Product: **DOWSIL™ 790 Silicone Building Sealant**.
 2. Hardness, ASTM C 661: 15 durometer Shore A.

3. Volatile Organic Compound (VOC) Content: 26 g/L maximum. Volatile Organic Compound (VOC) Content: 32 g/L maximum.
4. Staining, ASTM C 1248: None on concrete, granite, limestone, and brick.
5. Color: [As scheduled] [As selected by Architect from manufacturer's full line of not less than 10 colors] [Match Architect's custom color].

Specifier: **DOWSIL™ 756 SM Building Sealant** is a one-component, medium-modulus, neutral cure elastomeric silicone sealant suitable for weatherproofing porous stone, metal panels, curtain wall framing, and other above-grade expansion and control joints for both new and remedial construction.

- B. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**__: ASTM C 920, Type S, Grade NS, Class 50, ASTM C 1184; SWRI validation.

1. Basis of Design Product: **DOWSIL™ 756 SM Building Sealant**
2. Hardness, ASTM C 661: 30 durometer Shore A, minimum.
3. Volatile Organic Compound (VOC) Content: 22 g/L maximum.
4. Staining, ASTM C 1248: None on white marble.
5. Color: [As scheduled] [As selected by Architect from manufacturer's full line of not less than 10] [Match Architect's custom color].

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

- C. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**__: ASTM C 920, Type S, Grade NS, Class 50, for Use NT; SWRI validation.

1. Basis of Design Product: **DOWSIL™ 791 Silicone Weatherproofing Sealant.**
2. Hardness, ASTM D 2240: 34 durometer Shore A, minimum.
3. Volatile Organic Compound (VOC) Content: 30 g/L maximum.
4. Staining, ASTM C 1248: None on concrete, granite, limestone, and brick.
5. Color: [As selected by Architect from manufacturer's full line of not less than 6 colors].

Specifier: **DOWSIL™ 795 Silicone Building Sealant** is a one-component, medium modulus, neutral-cure, silicone sealant for structural and non-structural glazing, structural attachment for panel systems, as well as above-grade weathersealing joints with most common constructions materials for both new and remedial construction. Product complies with GSA Commercial Item Descriptions CID A-A-272A and CID A-A-1556.

- D. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant **JS#**__: ASTM C 920, Type S, Grade NS, Class 50, for Use NT; SWRI validation.

1. Basis of Design Product: **DOWSIL™ 795 Silicone Building Sealant.**
2. Hardness, ASTM D 2240: 35 - 45 durometer Shore A, minimum.
3. Volatile Organic Compound (VOC) Content: 32 g/L maximum.
4. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
5. Color: [As scheduled] [As selected by Architect from manufacturer's full line of not less than 10] [Match Architect's custom color].

Specifier: **DOWSIL™ 758 Silicone Weather Barrier Sealant** is a one-component, neutral-cure, silicone rubber 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.

- E. 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, minimum.
3. Volatile Organic Compound (VOC) Content: 61 g/L maximum.
4. Color: White.

Specifier: **DOWSIL™ 999A Silicone Building & Glazing Sealant** is a one-part, weather-resistant silicone sealant formulated for a wide range of building construction applications. It is particularly effective for glazing butt and lap shear joints and sealing curtainwall and other glass, plastic and metal assemblies. It can also be factory applied as a primary seal to glass, plastic, and metal assemblies. **DOWSIL™ 999A Sealant** is not suitable for structural glazing. It is compatible with acrylic and polycarbonate glazing sheets and one-part silicone construction sealants by Dow. It is also compatible with most laminated glass. A 10 year general product limited warranty is available.

- F. Single-Component, Nonsag, Acid-Curing Silicone Joint Sealant **JS#**__: ASTM C 920, Type S, Grade NS, Class 25, for Use NT

1. Basis of Design Product: **DOWSIL™ 999A Silicone Building & Glazing Sealant**
2. Hardness, ASTM D 2240: 25 durometer Shore A, minimum.
3. Volatile Organic Compound (VOC) Content: 36 g/L maximum.
4. Color: [As scheduled] [As selected by Architect from manufacturer's full line of not less than 6] [Match Architect's custom color].

2.4 PRE-FORMED JOINT SEALANTS

Specifier: **DOWSIL™ 123 Silicone Seal** is an extruded sheet product used for flashing and transitions in new construction and as a joint overlay in joint sealant rehabilitation work. It is available in widths of 1 - 12 inches (25 - 305 mm). Indicate required widths on drawing details. It is available in 6 standard colors and custom colors.

- A. Preformed Silicone Elastomer Extrusion: Highly flexible low-modulus flashing and transition material for bonding to substrates with silicone sealant. SWRI validation.

1. Basis of Design Product **DOWSIL™ 123 Silicone Seal**.
2. Surface: [Smooth matte] [Textured] [Grooved to facilitate bending].
3. Bonding Sealant: Manufacturer's recommended neutral-curing silicone.
4. Hardness, ASTM D 2240: 25 durometer Shore A, minimum.
5. Color: As selected by Architect from manufacturer's full line.

Specifier: **DOWSIL™ 123 Silicone Seal Custom Designs H.C.** is preformed, custom-designed and fabricated, two- and three-dimensional, shaped silicone elastomer extrusion for repair of failed sealant joints or use in new construction splices, mitered joints, boots, and molded corners.

- B. Preformed Silicone Elastomer Custom Two- and Three- Dimension Extrusion: Flexible flashing for bonding to substrates with silicone sealant.

1. Basis of Design Product: **DOWSIL™ 123 Silicone Seal Custom Designs H.C.**
2. Formulation: [General Purpose] [High Tear].
3. Shape: Multi-dimensional as indicated on drawings and approved shop drawings and as required to fit and functionally seal specific application and prevent air and water penetration

Specifier: **DOWSIL™ 123 Silicone Seal Custom Designs H.C.** is designed to meet aesthetic and weathersealing needs with a single product. Designs are custom-made to the customer's specification.

4. Bonding Sealant: Manufacturer's recommended neutral-curing silicone.
5. Color: As selected by Architect from manufacturer's full line.

2.5 ACCESSORIES

- A. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.
- B. Cylindrical Sealant Backing: ASTM C 1330, Type B non-absorbent, bi-cellular material with surface skin, or Type O open-cell polyurethane, as recommended by sealant manufacturer for application.
- C. Bond Breaker Tape: Polymer tape compatible with joint sealant materials and recommended by sealant manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

Specifier: Retain one of two "Examination of Existing Joint Sealants" paragraphs below based on project requirements. First paragraph is for project where scope of joint replacement is indicated in Contract Documents. Second paragraph is for use on cost plus fee project or with unit prices with Contractor indicating extent of joint sealant replacement on shop drawing submittal.

- A. Examination of Existing Joint Sealants: Examine existing joint sealants indicated to be replaced or rehabilitated. Examine joints for compliance with requirements for joint configuration, installation tolerances, condition of joint substrate, and other conditions affecting joint-sealant performance
- B. Examination of Existing Joint Sealants: Examine existing joint sealants and indicate extent of joint sealant replacement and rehabilitation on shop drawings. Examine joints for compliance with requirements for joint configuration, installation tolerances, condition of joint substrate, and other conditions affecting joint-sealant performance.
- C. Preinstallation Testing: Perform preinstallation adhesion tests in accordance with manufacturer's instructions and with ASTM C 1193, Method A. Verify substrate preparation and priming result in adhesion of sealants meeting sealant manufacturer's published performance data.
 - 1. If adhesion does not comply with published data, modify preparation and priming in accordance with sealant manufacturer's written instructions and retest.
- D. Submit report indicating conditions that cannot be corrected to comply with joint sealant manufacturer's recommendations as part of the specified joint replacement or rehabilitation. Proceed with work once non-complying conditions are corrected.

3.2 PREPARATION

Specifier: Existing failed organic sealants must be completely removed and replaced. Existing silicone weatherseals may not need to be completely removed and can be recapped. If failed joints are to be covered with preformed silicone seals, existing sealant and backing does not need to be removed.

- A. Removal of Failed Joint Sealant Materials: Cut out and remove joint materials and associated backing materials as indicated on drawings [and identified during pre-installation conference].
- B. Surface Cleaning of Joint Substrates: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods in addition to solvent cleaning to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Remove laitance and form-release agents from concrete.
 3. Clean porous and nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- C. Preparation of Joint Sealants to be Rehabilitated: Clean existing silicone sealant that is sufficiently adhered and not mechanically damaged to prepare for recapping. Use two-cloth solvent wipe in accordance with ASTM C 1193.

3.3 APPLICATION

- A. 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. Joint Backing: Select joint backing materials recommended by sealant manufacturer to be compatible with sealant material. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.
1. Install bond breaker tape over substrates when sealant backings are not used.
- D. Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths between 1/4 and 1/2 inch (6.4 and 12.7 mm) unless otherwise 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.

Specifier: Retain paragraph below if work includes capping of existing sound silicone joint sealants to be rehabilitated rather than replaced.

- E. Joint Sealant Rehabilitation: Apply thin capping bead of silicone sealant not less than 0.125 inch (3 mm) thick over existing cured and prepared sealant. Dry tool sealant with appropriate spatula in single smooth stroke to provide smooth, uniform sealant finish.

3.4 INSTALLATION OF PREFORMED SILICONE SEAL

Specifier: Retain this article if existing sealant joint is to be covered and sealed with DOWSIL™ 123 Silicone Seal preformed seal.

- A. Examine existing joints to be covered and sealed with preformed silicone seal. Ensure seal substrate is sound, clean, dry, and free of frost, dust, dirt, grease, oil, laitance, efflorescence, mildew, and previous films and coatings that are not acceptable as a joint substrate.
- B. Repair deteriorated or damaged substrates as recommended by silicone seal manufacturer. Allow patching materials to dry and cure.

- C. Clean substrates to receive silicone seal.
1. Porous surfaces: Abrasive-clean followed by blasting with oil-free compressed air.
 2. Nonporous surfaces: Use two-cloth solvent wipe in accordance with ASTM C 1193.
 3. High-pressure water cleaning: Exercise care that water does not enter through failed joints.
- D. Masking: Apply masking tape outlining area where silicone seal will be applied.

Specifier: Depending on substrate, primers may or may not be required to promote sealant adhesion. Testing should be conducted to determine optimum adhesion and if primer is required. Contact Dow for primer recommendations.

- E. Primer: Apply primer to substrates determined by manufacturer's recommended adhesion test to require primer. Apply in accordance with manufacturer's instructions.

Specifier: **DOWSIL™ 123 Silicone Seal** is installed by bonding extrusion to joint substrate with silicone sealant such as **DOWSIL™ 791 Silicone Weatherproofing Sealant** or **DOWSIL™ 795 Silicone Building Sealant**.

- F. Sealant: Apply bead of silicone sealant on each side of joint and 1/4 inch (6 mm) inside of applied masking tape, with minimum bonding area of 3/8 inch (9 mm), and minimum bead size as follows:
1. Rough substrate: 0.25 inch (6 mm).
 2. Smooth substrate: 0.125 inch (3 mm).
- G. Silicone Seal: Within 10 minutes of sealant application, press silicone extrusion into wet sealant. Apply consistent pressure with roller to ensure uniform contact.
- H. Complete horizontal joints prior to vertical joints. Lap vertical seal over seal on horizontal joint.

3.5 CLEANING

- A. 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 nonporous surfaces while still uncured.

3.6 FIELD QUALITY CONTROL

- A. [Retain] [Owner may retain] testing agency to perform the following tests:
1. Verification that substrate preparation meets requirements.
 2. Testing and certification that joint sealant materials comply with requirements.
 3. Testing of application for compliance with adhesion requirements.
- B. 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.
- C. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.
- D. Submit report of field adhesion testing indicating tests, locations, dates, results, and remedial actions taken.

Specifier: Edit sealant schedules below to reflect Project requirements. Delete items not required for Project. Identify joint sealant products by description and by identifier used in Part 2. Coordinate color requirements; certain Silicone Sealants by Dow can be custom matched for particular color requirements, while others are available in an array of standard colors only.

3.7 EXTERIOR JOINT-SEALANT SCHEDULE

- A. Exterior construction joints in cast-in-place concrete.

Specifier: Recommended liquid-applied product is **DOWSIL™ 790 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color] [insert color].

- B. Exterior movement joints in concrete unit masonry.

Specifier: Recommended liquid-applied products are **DOWSIL™ 790 Silicone Building Sealant** or **DOWSIL™ 795 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color] [insert color].

- C. Exterior movement joints in brick masonry.

Specifier: Recommended liquid-applied products are **DOWSIL™ 790 Silicone Building Sealant** or **DOWSIL™ 795 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color, Vertical Joints: [As selected by Architect from manufacturer's full range] [Match brick at vertical joints] [Match Architect's custom color].
3. Joint-Sealant Color, Horizontal Joints: [As selected by Architect from manufacturer's full range] [Match mortar at horizontal joints] [Match Architect's custom color] [insert color].

- D. Exterior movement joints in stone masonry.

Specifier: Recommended products are **DOWSIL™ 790 Silicone Building Sealant**, **DOWSIL™ 756 SM Building Sealant**, or **DOWSIL™ 795 Silicone Building Sealant**. For stain-sensitive stone such as marble, use **DOWSIL™ 756 SM Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color] [insert color].

- E. Exterior joints within exterior insulation finish systems.

Specifier: Recommended liquid-applied product is **DOWSIL™ 790 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color] [insert color].

- F. Exterior joints in metal panel cladding systems.

Specifier: Recommended product is **DOWSIL™ 756 SM Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color] [insert color].

G. Exterior concealed watertight joints in cladding systems.

Specifier: Recommended product is **DOWSIL™ 791 Weatherproofing Sealant**.

1. Joint Sealant: Single-component neutral-curing silicone sealant **JS#**__.

H. Exterior joints between different materials listed above.

Specifier: Recommended products are **DOWSIL™ 790 Silicone Building Sealant**, **DOWSIL™ 756 SM Building Sealant**, or **DOWSIL™ 795 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color].
3. Multiple colors required to match several conditions.

I. Exterior perimeter joints at frames of doors, windows, storefront frames, curtain wall frames, and louvers.

Specifier: Recommended products are **DOWSIL™ 790 Silicone Building Sealant**, **DOWSIL™ 756 SM Building Sealant**, or **DOWSIL™ 795 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color].
3. Multiple colors required to match several conditions.

J. Aluminum Storefront Framing and Curtain Wall Joints, Glazing, and Structural Glazing: Refer to Division 08 Section: Glazing Sealants.

K. All other exterior non-traffic joints.

Specifier: Recommended product is **DOWSIL™ 790 Silicone Building Sealant**.

1. Joint Sealant: Single-component neutral-curing silicone sealant **JS#**__.

L. Exterior horizontal traffic and traffic isolation joints [: Refer to Division 32 Section: Concrete Paving Joint Sealants].

Specifier: Recommended product is **DOWSIL™ 790 Silicone Building Sealant**.

1. Joint Sealant: Single-component pourable silicone sealant **JS#**__.
2. Joint-Sealant Color: [As selected by Architect from manufacturer's full range] [Match Architect's custom color].

END OF SECTION

Additional Specifier's Notes

Substitution Reviews: When reviewing substitution requests for other products for compliance with this specification, Dow recommends particular attention to the following issues:

Primer Requirements: Dow's experience often results in requiring priming of joint sealant substrates when other manufacturers waive priming requirements as a cost-saving provision that may benefit the contractor but not the owner. Make certain that field testing of joint sealants is carried out to ensure long term adhesion.

SWRI Certification: This respected industry product certification is an additional layer of Dow's quality assurance provided by an independent agency.

Laboratory Testing: Dow provides laboratory testing of joint sealants on proposed substrates when requested for a project – another quality assurance process that helps protect the long-term integrity of your building.

Silicone vs. Urethane Substitutions: Organic-based urethane sealants are not a substitute for silicone technology. The limited warranty periods available for urethane sealants indicate that their expected life is significantly less than that of silicone sealants.

Coordination: Make sure you coordinate the following:

- Profile of typical joints to accept joint sealant. Special attention to perimeter joints at wall openings.
- Compatibility of joint sealant chemistry with substrates in contact. Special attention to air barrier membranes and accessories.
- Extent of each type of joint sealant applications through drawing identification or editing of the joint sealant schedules.
- Cross-reference to applicable specification sections for joint sealant requirements written under other sections.
- Submittal requirements for color-matching to samples of products specified in other sections

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