

**PART - 1 GENERAL**

**1.1 SUMMARY**

.1 Section Includes:

- .1 Labour, Products, equipment and services necessary to complete the work of this Section for joint sealants as indicated on drawings and as required.
- .2 This Section specifies sealing work not specified in other Sections. Refer to other Sections for other sealants.

.2 Related Requirements:

- .1 Comply with Conditions of the Contract and Division 01 - General Requirements.

**1.2 REFERENCES**

.1 American Society for Testing and Materials (ASTM)

- .1 ASTM C719, Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)
- .2 ASTM C834, Standard Specification for Latex Sealants
- .3 ASTM C920, Standard Specification for Elastomeric Joint Sealants
- .4 ASTM C1248, Standard Test Method for Staining of Porous Substrate by Joint Sealants
- .5 ASTM E90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

**1.3 ACTION SUBMITTALS**

.1 Product Data: Submit to Consultant Product information from sealant manufacturer prior to commencement of work of this Section verifying:

- .1 Selected sealant materials are from those specified.
- .2 Composition and physical characteristics.
- .3 Surface preparation requirements.
- .4 Priming and application procedures.
- .5 Suitability of sealants for purposes intended and joint design.
- .6 Test report on adhesion, compatibility and staining effect on samples of adjacent materials used on Project.
- .7 Sealants compatibility and adhesion with other materials and Products with which they come in contact including but not limited to sealants provided under other Sections, insulation adhesives, bitumens, membranes, stone, concrete, masonry, metals and metal finishes, ceramic tile, plastic laminates and paints.
- .8 Suitability of sealants for temperature and humidity conditions at time of application

.2 Samples: Submit duplicate samples of each type of material and colour. Submit samples of primer, bond breaker tape and joint backing material, if requested.

**1.4 INFORMATION SUBMITTALS**

.1 Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

- .2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.

## 1.5 **ADMINISTRATIVE REQUIREMENTS**

- .1 Pre-installation meeting:
  - .1 Two (2) weeks prior to commencing work of this Section, arrange for manufacturer's technical representative to visit the site and review with installer preparatory and installation procedures to be followed, conditions under which the work will be done, and inspect the surfaces to receive the work of this Section.
  - .2 Establish a procedure to maintain optimum working conditions and to coordinate this work with related and adjacent work.
  - .3 Advise the Consultant of the date and time of the meeting.

## 1.6 **QUALITY ASSURANCE**

- .1 Applicators: Recognized and established sealant applicators with at least five years experience and having skilled mechanics thoroughly trained and competent in the use of sealant equipment and the specified materials.
- .2 Single source responsibility: Use sealants from single manufacturer for each different product required to ensure compatibility.
- .3 Pre-installation compatibility and adhesion testing: Provide sealant manufacturer samples of actual materials that will contact or affect their sealants in the Work for compatibility and adhesion testing. This testing will not be required where sealant manufacturer is able to furnish data acceptable to Consultant based on previous testing for adhesion and compatibility to materials matching those of the Work.
- .4 Pre-installation field adhesion testing:
  - .1 Conduct site field-tests for adhesion of sealants to actual joint substrates using proposed preparation methods and materials recommended by manufacturer.
  - .2 Conduct tests for each type of sealant and substrate.
  - .3 Locate field-test joints where inconspicuous or as directed by Consultant. Include areas typical of those requiring removal of existing sealants and utilize methods proposed for sealant removal.
  - .4 Test method: Use manufacturer's standard field adhesion test methods and methods proposed for joint preparation to verify proper priming and joint preparation techniques required to obtain optimum adhesion of joint sealants to joint substrate.
  - .5 Evaluate and report results of field adhesion testing.
  - .6 Do not use joint preparation methods or sealants that produce less than satisfactory adhesion to joint substrates during testing.
- .5 Standard of acceptance: Retain at least one 1500 mm long acceptable joint for each type of sealant and substrate installed during pre-installation field adhesion testing as standard of acceptability for the Work. Acceptable joints may form part of the Work.
- .6 Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 **DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture and water.

1.8 **PROJECT CONDITIONS**

- .1 Do not proceed with installation of joint sealants under the following conditions:
  - .1 When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer, or are below 5 deg C (40 deg F).
  - .2 When joint substrates are wet.
  - .3 Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - .4 Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

**PART - 2 PRODUCTS**

2.1 **MATERIALS - GENERAL**

- .1 Provide interior joint sealants establishing and maintaining water tight, water resistant and air tight continuous joint seals without staining or deteriorating joint substrates.
- .2 Ensure joint sealants comply with specified type, grade, class and uses.
- .3 Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- .4 Provide Products with capability, when tested, for adhesion and cohesion under maximum cyclic movement in accordance with ASTM C719, to withstand required percentage change in joint width existing at time of installation and remain in compliance with other requirements of ASTM C920 for uses indicated.
- .5 VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - .1 Architectural Sealants: 250 g/L.
  - .2 Sealant Primers for Nonporous Substrates: 250 g/L.
  - .3 Sealant Primers for Porous Substrates: 775 g/L.
- .6 Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- .7 Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

- .8 Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- .9 Sealants, cleaning solvents and primers: Compatible with each other.
- .10 Colours of Exposed Joint Sealants: As selected by Consultant from manufacturer's full range. Allow for special colours as selected by the Consultant.

## 2.2 **JOINT SEALANTS**

- .1 **Sealant Type 1:** Single-component, non-sag, polyurethane joint sealant meeting specified requirements of ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
  - .1 Dymonic by Tremco (Canada),
  - .2 SikaFlex 1a by Sika Canada Inc.
  - .3 Sonolastic NP1 by BASF Construction Chemicals, LLC-Building Systems.
- .2 **Sealant Type 2:** Acrylic latex or siliconized acrylic latex joint sealant meeting specified requirements of ASTM C 834, Type OP, Grade NF.
  - .1 Tremflex 834 by Tremco Incorporated,
  - .2 Sonolac by BASF Construction Chemicals, LLC-Building Systems.
- .3 **Sealant Type 3:** Mildew-resistant, single-component, acid-curing silicone joint sealant, meeting specified requirements of ASTM C 920, Type S, Grade NS, Class 25, for Use NT, G, A and O.
  - .1 Tremsil 200 by Tremco (Canada).
  - .2 Dow Corning 786 by Dow Corning Corporation.
  - .3 GE SCS1700 Sanitary by Momentive Performance Materials Inc.
  - .4 OmniPlus by BASF Construction Chemicals, LLC-Building Systems.

## 2.3 **MISCELLANEOUS MATERIALS**

- .1 Joint primer: As recommended by sealant manufacturer for substrates, conditions and exposures indicated.
- .2 Bond breaker: Polyethylene tape or other adhesive faced tape as recommended by sealant manufacturer to prevent sealant contact where it would be detrimental to sealant performance.
- .3 Joint backer: Polyethylene foam rod or other compatible non-waxing, non-extruding, non-staining resilient material in dimension 25 percent to 50 percent wider than joint width as recommended by sealant manufacturer for conditions and exposures indicated. Ensure backing is compatible with sealant, primer and substrate.
- .4 Masking tape: Non-staining, non-absorbent tape product compatible with sealants and adjacent joint surfaces that is suitable for masking.
- .5 Cleaning Material: Non-corrosive, non-staining, solvent type, xylol, MEK, toluol, IPA or as recommended by sealant manufacturer and acceptable to material or finish manufacturers for surfaces adjacent to sealed areas free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants with joint substrates.

**PART - 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- .2 Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- .1 Prepare surfaces to receive work in accordance with sealant manufacturer's instructions and recommendations except where more stringent requirements are indicated.
- .2 Thoroughly clean joint surfaces using cleaners approved by sealant manufacturer whether primers are required or not.
- .3 Remove all traces of previous sealant and joint backer by mechanical methods, such as by cutting, grinding and wire brushing, in manner not damaging to surrounding surfaces.
- .4 Remove paints from joint surfaces except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
- .5 Remove wax, oil, grease, dirt film residues, temporary protective coatings and other residues by wiping with cleaner recommended for that purpose. Use clean, white, lint-free cloths and change cloths frequently.
- .6 Remove dust by blowing clean with oil-free, compressed air.
- .7 Joint backer: Provide joint backer uniformly to depth required for proper joint design using a blunt instrument. Fit securely by compressing backer material 25 percent to 50 percent so no displacement occurs during tooling. Avoid stretching or twisting joint backer.
- .8 Bond breaker: Provide bond-breaker recommended by sealant manufacturer, adhering strictly to the manufacturer's installation requirements.
- .9 Priming: Prime joint substrates where required. Use and apply primer to sealant manufacturers recommendations. Confine primers to sealant bond surfaces; do not allow spillage or migration onto adjoining surfaces.
- .10 Taping: Use masking tape, where required, to prevent sealant or primer contact with adjoining surfaces that would be permanently stained or otherwise damaged by such contact or the cleaning methods required for removal. Apply tape so as not to shift readily, and remove tape immediately after tooling without disturbing joint seal.

**3.3 INSTALLATION**

- .1 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .2 Install sealants immediately after joint preparation.
- .3 Mix, apply and cure sealants in accordance with manufacturer's printed instructions.
- .4 Install sealants to fill joints completely, without voids or entrapped air, using proven techniques, proper nozzles and sufficient force that result in sealants directly contacting and fully wetting joint surfaces.

- .5 Install sealants to uniform cross-sectional shapes with depths relative to joint widths that allow optimum sealant movement capability as recommended by sealant manufacturer.
- .6 Dry tool sealants in manner that forces sealant against back of joint, ensures firm, continuous full contact at joint interfaces and leaves a finish that is smooth, uniform and free of ridges, wrinkles, sags, air pockets and embedded impurities.
  - .1 Tooling liquids that are non-staining, non-damaging to adjacent surfaces and approved by sealant manufacturer may be used if necessary when care is taken to ensure that the liquid does not contact joint surfaces before the sealant.
  - .2 Provide concave tooled joints unless otherwise indicated to provide flush tooling or recessed tooling.
  - .3 Provide recessed tooled joints where the outer face of substrate is irregular.
- .7 Remove sealant from adjacent surfaces in accordance with sealant and substrate manufacturer recommendations as work progresses.
- .8 Do not cover up sealants until proper curing has taken place.
- .9 Protect joint sealants from contact with contaminating substances and from damages. Cut out, remove and replace contaminated or damaged sealants immediately, so that they are without contamination or damage at time of Substantial Performance.

#### 3.4 **LOCATION SCHEDULE**

- .1 Refer to Drawings for sealing work not specifically listed in this Section.
- .2 Use one of the sealants specified for each type in following locations. Ensure sealant chosen from several specified types listed under Part 2 Materials, and recommended by manufacturer for use for conditions encountered:
- .3 Seal following joints with Sealant Type 1 one component modified polyurethane sealant:
  - .1 Interior gypsum board control joints.
- .4 Seal following joints with Sealant Type 2 acrylic sealant:
  - .1 Joints between interior metal and/or wood frames and adjacent construction in interior partitions.
  - .2 Joints between interior aluminum door, window and screen frames and adjacent construction in interior partitions.
  - .3 Interior joints to receive paint finish.
- .5 Seal following joints with Sealant Type 3 mildew resistant silicone sealant:
  - .1 Typically used in joints between around washrooms accessories, at corners of walls, between splash backs and walls, in shower, damp or wet areas, at ceramic tiles where mildew resistant sealant is required.
  - .2 Underside of rims of sinks between sink rims and counters.
  - .3 Around pipes and conduits passing through walls and ceilings in washrooms. Conceal sealant with escutcheons.
  - .4 Joints between counters/vanities and walls in washrooms.

- .5 Joints between water closets and walls in washrooms.
- .6 Joints between wall mounted lavatories and walls in washrooms.

END OF SECTION