

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
  - .1 ASTM C919, Standard Practice for Use of Sealants in Acoustical Applications.
  - .2 ASTM C920, Standard Specification for Elastomeric Joint Sealants.
- .2 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act (CEPA).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act (TDGA).
- .5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards.
  - .1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.2 DEFINITIONS

- .1 Sealant Types: M - Multi-Component and S - Single Component.
- .2 Sealant Grades: P - Pourable or Self-Leveling used for horizontal traffic joints and NS - Non-Sag or Gunnable used for vertical and non-traffic joints.
- .3 Sealant Classes: 25, 50, and 100/50 (extension/compression) representing movement capability in percent of joint width. Sealant Classes: 25, 50, and 100/50 (extension/compression) representing movement capability in percent of joint width.
- .4 Sealant Uses: T - Traffic, NT - Non-Traffic, I - Immersion, M- Mortar, G - Glass, A - Aluminum, and O - Other. Use O includes color anodized aluminum, metals other than aluminum,

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| <u>1.2 DEFINITIONS<br/>(Cont'd)</u>      | .4 Sealant Uses: (Cont'd)<br>painted surfaces, brick, stone, tile, and wood<br>for example.   |
| <br>                                     |   |
| <u>1.3 SUBMITTALS</u>                    | .1 Submit product data in accordance with<br>Section 01 33 00 - Submittal Procedures.<br><br>.2 Manufacturer's product to describe:<br>.1 Caulking compound.<br>.2 Primers.<br>.3 Sealing compound, each type, including<br>compatibility when different sealants are in<br>contact with each other.<br>.4 Installation instructions, surface<br>preparation and product limitations.<br><br>.3 Submit duplicate samples of each type of<br>material and colour.<br><br>.4 Manufacturers' instructions to include<br>installation instructions for each product<br>used.<br><br>.5 Sustainable Design Submittals:<br>.1 LEED Canada Submittals: in accordance<br>with Section 01 35 21 - LEED Requirements. |
| <br>                                     |   |
| <u>1.4 LEED SUBMITTALS</u>               | .1 Provide product data for adhesives and<br>sealants as specified in Section 01 35 21 -<br>LEED Requirements.  |
| <br>                                     |   |
| <u>1.5 QUALITY<br/>ASSURANCE/MOCK-UP</u> | .1 Construct mock-up in accordance with Section<br>01 45 00 - Quality Control.<br><br>.2 Construct mock-up to show location, size,<br>shape and depth of joints complete with<br>back-up material, primer, caulking and<br>sealant. Mock-up may be part of finished work.<br><br>.3 Allow 24 hours for inspection of mock-up by<br>Departmental Representative before proceeding<br>with sealant work.  |
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1.5 QUALITY  
ASSURANCE/MOCK-UP  
(Cont'd)

- .4 Mock-up will be used:
  - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
  - .2 To judge workmanship, substrate preparation, operation of equipment and material application.
- .5 When accepted, mock-up will demonstrate minimum standard of quality required for this Work.

1.6 DELIVERY,  
STORAGE AND  
HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.7 PROJECT  
CONDITIONS

- .1 Environmental Limitations:
  - .1 Do not proceed with installation of joint sealants under following conditions:
    - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4°C.
    - .2 When joint substrates are wet.
  - .2 Joint-Width Conditions:
    - .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
  - .3 Joint-Substrate Conditions:
    - .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

PART 2 - PRODUCTS

2.1 LEED PRODUCT  
REQUIREMENTS

- .1 Use adhesives and sealants that comply with VOC limited specified in Section 01 35 21 - LEED Requirements.

2.2 SEALANT  
MATERIALS

- .1 Sealants and Caulking compounds must:
  - .1 Meet or exceed all applicable governmental and industrial safety and performance standards; and
  - .2 Be manufactured and transported in such a manner that all steps fo the process, including the disposal of waste products arising therefrom, will meet the requirements of all applicable governmental acts, by laws and regulations including, for facilities located in Canada, the Fisheries Act and the Canadian Environmental Protection Act (CEPA).
- .2 Sealant and caulking compounds must not be formulated or manufactured with: aromatic solvents, fibrous talc or asbestos, formaldehyde, halogenated solvents, mecury, lead, cadium, hexavalent chromium, barium or their compounds, except barium sulphate.
- .3 Sealant and caulking compounds must not contain a total of volatile organic compound (VOC's) in excess of 5% by height as calculated from records of the amounts of constituents used to make the product.
- .4 Sealant and caulking compounds must be accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance, and information describing proper disposal methods.
- .5 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .6 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior, are contained behind air barriers,

2.2 SEALANT  
MATERIALS  
(Cont'd)

- .6 (Cont'd)  
or are applied several months before occupancy  
to maximize off-gas time.
- .7 Where sealants are qualified with primers use  
only these primers.
- .8 Colours of sealant to be selected by  
Departmental Representative from the range of  
manufacturer's standard colours.

2.3 SEALANT  
MATERIAL  
DESIGNATIONS

- .1 Type 1: Multi-component, chemically curing,  
polyurethane sealant, tintable. To meet  
specified requirements of ASTM C920, Type M,  
Grade NS, Class 50, uses NT, M, A and O.
- .2 Type 2: One part moisture curing polyurethane  
sealant. Meeting the specified requirements of  
specification ASTM C920, Type S, Grade NS,  
Class 25, uses NT, M, A, O.
- .3 Type 3: Medium modulus, neutral curing, one  
part silicone sealant. Meeting the specified  
requirements of specification ASTM C920, Type  
S, Grade NS, Class 50, uses NT, M, G, A, and O.  
Use in glass to glass, glass to metal and  
metal to metal curtain wall joints.
- .4 Type 4: Multi-component or single component  
self-levelling or slope grade polyurethane  
sealant. Meeting the specified requirements of  
ASTM C920, Type M, Grade P, Class 25, use T, M  
and O. Use in exterior and interior horizontal  
traffic joints. For areas where the slope fo  
the deck makes self-levelling material  
impractical. Use a non-sag material similar to  
that specified herein for level applications.
- .5 Type 5: Mildew resistant, one component  
neutral cure silicone sealant. Meeting the  
specified requirements of specification ASTM  
C920, Type S, Grade NS, uses NT, G A and O or  
approved equal. Use on fixtures, bathtubs,  
showers and vanity tops.
- .6 Type 6: One component, non-skinning,  
non-hardening acoustical sealant. Meeting the  
specified requirements of specification

2.3 SEALANT  
MATERIAL  
DESIGNATIONS  
(Cont'd)

- .6 Type 6: (Cont'd)  
CAN/CGSB 19.21 - M87. Use at all vapour barrier joints and openings in drywall systems as shown on the drawings or specified.
- .7 Type 7: One component, paintable acrylic latex sealant. Meeting the specified requirements of specification ASTM C834, Type OP. Use in interior non-moving joints that may be painted.
- .8 Preformed Compressible and Non-Compressible back-up materials.
  - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
    - .1 Extruded closed cell foam backer rod.
    - .2 Size: oversize 30 to 50 %.
  - .2 Neoprene or Butyl Rubber.
    - .1 Round solid rod, Shore A hardness 70.
  - .3 High Density Foam.
    - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup> density, or neoprene foam backer, size as recommended by manufacturer.
  - .4 Bond Breaker Tape.
    - .1 Polyethylene bond breaker tape which will not bond to sealant.

2.4 SEALANT  
SELECTION

- .1 Exterior Joints:
  - .1 Vertical joints which are bordered on one or both sides by:
    - .1 Porous building materials such as concrete, natural stone (marble, granite, limestone, etc.) or masonry or;
    - .2 Non-porous building materials such as painted metal, anodized aluminum, mill finish aluminum, PVC or porcelain tile.
    - .3 Seal with Type 2 sealant.
- .2 Interior Joints:
  - .1 For all interior exposed-to-view joints: use Type 1 sealant.

2.4 SEALANT  
SELECTION  
(Cont'd)

- .2 Interior Joints: (Cont'd)
  - .2 Horizontal joints, including saw cut control joints in concrete floor slabs: Seal with Type 4 sealants.
  - .3 Gypsum wallboard acoustical sealant. Use Type 7 sealant.

2.5 ACCESSORIES

- .1 Joint Cleaner: non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: non-staining type, as recommended by sealant manufacturer.
- .3 Masking tape: non-staining, non-absorbent tape product compatible with joint sealants and adjacent surfaces.

PART 3 - EXECUTION

3.1 PROTECTION

- .1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE  
PREPARATION

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.
- .3 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.
- .4 Ensure joint surfaces are dry and frost free.

3.2 SURFACE  
PREPARATION  
(Cont'd)

- .5 Prepare surfaces in accordance with manufacturer's directions.

3.3 PRIMING

- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
- .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.

3.4 BACKUP  
MATERIAL

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.5 MIXING

- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

3.6 APPLICATION

- .1 Sealant.
  - .1 Apply sealant in accordance with manufacturer's written instructions.
  - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
  - .3 Apply sealant in continuous beads.
  - .4 Apply sealant using gun with proper size nozzle.
  - .5 Use sufficient pressure to fill voids and joints solid.
  - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
  - .8 Remove excess compound promptly as work progresses and upon completion.



3.6 APPLICATION  
(Cont'd)

- .2 Curing.
  - .1 Cure sealants in accordance with sealant manufacturer's instructions.
  - .2 Do not cover up sealants until proper curing has taken place.
- .3 Cleanup.
  - .1 Clean adjacent surfaces immediately and leave Work neat and clean.
  - .2 Remove excess and droppings, using recommended cleaners as work progresses.
  - .3 Remove masking tape after initial set of sealant.

3.7 ACOUSTIC  
SEALANT

- .1 Application:
  - .1 Acoustic sealant materials are to be applied whenever a penetration such as a pipe, duct, conduit, building structural element, support, etc., penetrates a partition, floor or ceiling that are not fire rated.
  - .2 Acoustic sealant applications to be checked and verified by the manufacturer's trained representative who shall provide a written report certifying to the Owner that all acoustic sealant work conducted meets the manufacturer's recommendations.