

**Part 1        GENERAL****1.1        RELATED SECTIONS**

- .1        09 67 23 Resinous Flooring.

**1.2        REFERENCES**

- .1        ASTM International
  - .1        ASTM C 919-08, Standard Practice for Use of Sealants in Acoustical Applications.
- .2        Canadian General Standards Board (CGSB)
  - .1        CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .2        CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
  - .3        CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
  - .4        CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
- .3        General Services Administration (GSA) - Federal Specifications (FS)
  - .1        FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.
- .4        Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1        Material Safety Data Sheets (MSDS).
- .5        South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
  - .1        SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

**1.3        ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Product Data:
  - .1        Submit manufacturer's instructions, printed product literature and data sheets for joint sealants and include product characteristics, performance criteria, physical size, finish and limitations.

- .3 Manufacturer's product to describe:
  - .1 Caulking compound.
  - .2 Primers.
  - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- .4 Submit 2 (two) copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .5 Samples:
  - .1 Submit 2 (two) samples of each type of material and colour.
  - .2 Cured samples of exposed sealants for each colour where required to match adjacent material.
- .6 Manufacturer's Instructions:
  - .1 Submit instructions to include installation instructions for each product used.

#### **1.4 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect joint sealants from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

#### **1.6 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Proceed with installation of joint sealants only when:
    - .1 Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C.

- .2 Joint substrates are dry.
  - .3 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .2 Joint-Width Conditions:
  - .1 Proceed with installation of joint sealants only where joint widths are more than those allowed by joint sealant manufacturer for applications indicated.
- .3 Joint-Substrate Conditions:
  - .1 Proceed with installation of joint sealants only after contaminants capable of interfering with adhesion are removed from joint substrates.

## **1.7 ENVIRONMENTAL REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Health Canada.
- .2 Departmental Representative will arrange for ventilation system to be operated on maximum outdoor air and exhaust during installation of caulking and sealants. Ventilate area of work by use of approved portable supply and exhaust fans.

## **Part 2 PRODUCTS**

### **2.1 SEALANT MATERIALS**

- .1 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .2 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
- .3 Where sealants are qualified with primers use only these primers.

### **2.2 SEALANT MATERIAL DESIGNATIONS**

- .1 Polysulfide two part:
  - .1 Self-levelling to CAN/CGSB-19.24, Type 1, Class B, colour to match adjacent materials.
- .2 Polysulfide two part:

- .1 Non-sag: to CAN/CGSB-19.24, Type 2, Class B, colour to match adjacent materials.
- .3 Silicones one part: to CAN/CGSB-19.13. Mildew resistant, colour to match adjacent materials.
- .4 Acoustical sealant: to ASTM C 919.
- .5 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
  - .1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN- ULC-S115 and not to exceed opening sizes for which they are intended Service penetration assemblies: systems tested to CAN-ULC-S115.
  - .2 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.
  - .3 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
  - .4 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
  - .5 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
  - .6 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
  - .7 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
  - .8 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
    - .1 Sealants for vertical joints: non-sagging.
- .6 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 tape not adhering to sealant.

## 2.3 SEALANT SELECTION

- .1 Perimeters of exterior openings where frames meet exterior facade of building (i.e. brick, block, precast masonry): sealant type: Polysulfide two part. Non sag.
- .2 At all fire rated assemblies and penetrations through vertical or horizontal fire rated partitions: Fire stopping and smoke seal systems tested to CAN-ULC-S115 of appropriate size and make-up for the opening sizes according to the following schedule:
  - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
  - .2 Edge of floor slabs at curtain wall and precast concrete panels.
  - .3 Top of fire-resistance rated masonry and gypsum board partitions.
  - .4 Intersection of fire-resistance rated masonry and gypsum board partitions.
  - .5 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
  - .6 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
  - .7 Openings and sleeves installed for future use through fire separations.
  - .8 Around mechanical and electrical assemblies penetrating fire separations.
  - .9 Rigid ducts: greater than 129 cm<sup>2</sup>: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.
  - .10 Specify in the specification or indicate on the drawings the fire or smoke protection materials or assemblies required at access points or crossings of structures with a degree of fire resistance. Here is a typical list of places where such protection should be provided.
- .3 Expansion and control joints in exterior surfaces of poured-in-place concrete walls: sealant type: Polysulfide two part. Non sag.
- .4 Coping joints and coping-to facade joints: sealant type: Polysulfide two part. Non sag.
- .5 Cornice and wash (or horizontal surface joints): sealant type: Polysulfide two part. Self-leveling.
- .6 Exterior joints in horizontal wearing surfaces (as itemized): sealant type: Polysulfide two part. Self-leveling.
- .7 Expansion and control joints on the interior of exterior precast, architectural wall panels: sealant type: Polysulfide two part. Non Sag..
- .8 Joints of underside of precast beams or planks: sealant type: Acoustical sealant.
- .9 Interior control and expansion joints in floor surfaces: sealant type: Polysulfide two part. Non Sag.
- .10 Perimeters of interior frames, as detailed and itemized: sealant type: Polysulfide two part. Non Sag.

- .11 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): sealant type: Polysulfide two part. Non Sag.
- .12 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, water closets, basins, vanities): sealant type: Silicone one part, mildew resistant.
- .13 Countertop junctions with walls: sealant type: Silicone one part, mildew resistant.
- .14 Joints and junctions of Air Barrier Membrane: sealant type: Acoustical sealant.
- .15 Joints and junctions in Vapour Barrier Membrane: sealant type: Acoustical sealant.
- .16 Joints at perimeter of electrical junction boxes in exterior walls: sealant type: Acoustical sealant.
- .17 Exposed interior control joints in drywall: sealant type: Sealant type: Silicone one part.

## **2.4 JOINT CLEANER**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant in accordance with sealant manufacturer's written recommendations.
- .2 Primer: in accordance with sealant manufacturer's written recommendations.

## **Part 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Consultant.
  - .2 Inform Consultant of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

### **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.
- .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.
- .2 Curing:
  - .1 Cure sealants in accordance with sealant manufacturer's instructions.
  - .2 Do not cover up sealants until proper curing has taken place.

**3.7 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean adjacent surfaces immediately.
  - .3 Remove excess and droppings, using recommended cleaners as work progresses.
  - .4 Remove masking tape after initial set of sealant.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 10 00 General Instructions.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**3.8 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by joint sealants installation.

END OF SECTION