

## **1 GENERAL**

### **1.01 GENERAL REQUIREMENTS**

- .1 Comply with requirements of Division 1.

### **1.02 RELATED WORK**

- .1 Section 08 11 16: Aluminum Doors and Frames.
- .2 Section 08 44 13: Glazed Aluminum Curtain Wall.
- .3 Section 08 80 00: Glazing.

### **1.03 REFERENCES**

- .1 ASTM C919, Standard Practice for use of Sealants in Acoustical Applications.
- .2 CAN/CGSB-19.13, Sealing Compound, One-component, Elastomeric, Moisture Curing.
- .3 CAN/CGSB-19.17, One Component Acrylic Emulsion Base Sealing Compound.
- .4 CAN/CGSB-19.24, Multi-Component, Chemical Curing Sealing Compound.
- .5 CAN/CGSB 19-GP-17M one-component, siliconized acrylic latex.
- .6 Material Safety Data Sheets (MSDS) - Health Canada/Workplace Hazardous Materials Information Systems (WHMIS).

### **1.04 DEFINITION**

- .1 In this Section "caulking" means sealant.

### **1.05 SUBMITALS**

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 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.
- .3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Submit manufacturer's instructions in accordance with Section 01 33 00

-Submittal Procedures.

- .1 Instructions to include installation instructions for each product used.

#### **1.06 QUALITY ASSURANCE**

- .1 Use only sealants which are proven to be compatible with materials they are in contact with. Notify Departmental Representative prior to start of sealant work should any sealant specified be considered unsuitable for the purpose intended.

#### **1.07 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.
- .3 Store materials in a dry area having an ambient temperature within limitations recommended by material manufacturer..

#### **1.08 ENVIRONMENTAL AND SAFETY REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .3 Unless otherwise specified, apply sealants when air temperature is between 10°C and 25°C. When air temperature is above 25°C or below 10°C follow sealant manufacturer's recommendations regarding application.
- .4 Ventilate area of Work in accordance with manufacturer's material safety data sheets.

#### **1.09 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 degrees 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.

#### **1.10 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .6 Do not dispose of unused sealant material into sewer system, onto ground or in other location where it will pose health or environmental hazard.
- .7 Dispose of unused sealant material at official hazardous material collections site approved by Departmental Representative.
- .8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.
- .9 Fold up metal banding, flatten and place in designated area for recycling.

### 1.11 WARRANTY

- .1 At no cost to Departmental Representative, remedy any defects in work, including work of this and other Sections, due to faults in materials and /or workmanship provided under this Section appearing within a period of two (2) years from date of Substantial Performance.

## 2 PRODUCTS

### 2.01 SEALANT MATERIALS

- .1 Do not use caulking that emits strong odors, contains toxic chemicals or is not certified as mold 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 gass time.
- .3 Where sealants are qualified with primers use only these primers.

### 2.02 MATERIALS

- .1 Sealants:
  - .1 Exterior use:
    - .1 Sealant (Type "A"): one part, moisture curing type to CAN/CGSB-19.13. Acceptable material: # 790 - Silicone Building Sealant by Dow Corning, SikaSil-C990 by Sika Canada Inc., or approved equal.
  - .2 Interior use:
    - .1 Sealant (Type "C"): one part, air curing, siliconized acrylic latex to CGSB 19-GP-17M. Acceptable material: Tremflex 834 by Tremco, Sonolac by Sonneborn or approved equal.
- .3 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.
- .4 Colors: to be selected by Departmental Representative from manufacturer's standard colors.
- .5 Primers, thinners: as recommended by sealant manufacturer, non-staining.
- .6 Preformed compressible and non-compressible back-up materials:
  - .1 Polyethylene, urethane, neoprene or vinyl foam: extruded closed cell foam backer rod. Size: oversize 30 to 50%.
  - .2 Neoprene or butyl rubber: round solid rod, Shore A, hardness 70.

- .3 High density foam: 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.
- .7 Bond Breaker: closed cell polyethylene or vinyl foam tape which will not bond to sealant.
- .8 Joint cleaner: Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

### **3 EXECUTION**

#### **3.01 EXAMINATION**

- .1 Examine joints to be caulked and report in writing to the Departmental Representative any defects in work of other Sections which would impair installation, performance and warranty of sealants.
- .2 Do not commence installation of sealants until conditions are acceptable.
- .3 Start of work implies acceptance of conditions.

#### **3.02 PROTECTION**

- .1 Protect completed work from staining or contamination. Repair any damage caused by sealants.

#### **3.03 PREPARATION**

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean and prepare 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.
- .6 Chemically clean non-porous surfaces such as metal and glass, taking care to wipe solvents dry with clean cloth. Use solvents recommended by sealant manufacturer.
- .7 Prepare porous surfaces such as masonry and concrete to sealant manufacturer's specifications.

### 3.04 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 recommendations. Apply primer immediately prior to caulking.

### 3.05 BACKUP MATERIAL

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

### 3.06 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 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.

### 3.07 SEALANT

- .1 At operable hinged vent units apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.
- .2 Provide caulking between framing members and adjoining work and where required to render work weather tight.
- .3 Effectively seal window units to adjacent building elements to provide for continuity of air and vapour barrier in all locations.
- .4 Fill voids between aluminum window framing and surrounding building elements with foamed-in-place insulation.

### 3.08 CLEANING

- .1 Clean adjacent surfaces immediately and leave work neat and clean. Use cleaning method recommended by manufacturer.
- .2 Remove excess and droppings, using recommended cleaners as work progresses.
- .3 Remove masking tape after initial set of sealant.

### 3.09 SCHEDULE

- .1 Apply sealant Type "A" at the following exterior locations:
  - .1 Between dissimilar (porous) materials in exposed locations except where specifically indicated otherwise.
  - .2 At all perimeters of non-porous to porous materials (i.e. aluminum windows and, concrete block) and where indicated on drawings.
  - .3 Perimeters of exterior openings where aluminum window frames meet exterior façade of building (i.e. masonry).
  - .4 Control joints in exterior surfaces of poured-in-place concrete walls.
  - .5 Control joints in exterior surfaces of concrete block masonry walls.
  - .6 At penetrations through exterior building elements.
  - .7 Below door thresholds (two beads).
  - .8 and where indicated on drawings.
- .2 Apply sealant Type "B" at the following exterior locations:

- .1 At all perimeters of metal to metal joints and glass to metal joints (i.e. aluminum windows and preformed metal wall cladding).
- .2 At interior or exterior perimeters of aluminum windows and preformed metal wall cladding (sealant air seal) except those sealed under work of other Sections.
- .3 Perimeters of exterior openings where aluminum windows, entrance frames, aluminum louvres, etc. meet exterior facade of building (i.e. preformed metal wall cladding, etc).
- .4 At perimeter of steel door frames and exterior façade of building.
- .5 and where indicated on drawings.
- .3 Apply sealant Type "C" at the following interior locations:
  - .1 Between dissimilar materials in exposed locations except where specifically indicated otherwise.
  - .2 Perimeter of steel door, screen frames, louvre frames, etc where gap between frame and wall exceeds 1.5 mm or where gap is irregular.
  - .3 Control joints in masonry elements and joints between masonry walls.
  - .4 Perimeter of cabinets, access panels, and control panels.
  - .5 Between walls and hand basins, countertops and between countertops and lavatories.
  - .6 Between floors and WC's.
  - .7 and where indicated on drawings.
- .4 Where sealant requires painting use acrylic emulsion type caulking.

END OF SECTION