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**PART 1 - GENERAL**

**1.1 GENERAL REQUIREMENTS**

- .1 Comply with requirements of Division 1.

**1.2 RELATED WORK**

- .1 Section 01 74 21 - Construction/ Demolition Waste Management & Disposal.
- .2 Section 06 10 00 - Rough Carpentry.
- .3 Section 07 27 00 - Sheet Membrane Air Barrier.

**1.3 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM C553-11, Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
  - .2 ASTM C612-10, Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
- .2 Underwriters' Laboratories of Canada
  - .1 CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  - .2 CAN/ULC-S702-09, Standard for Mineral Fibre Thermal Insulation for Buildings.
- .3 Canadian General Standards Board
  - .1 CGSB 71-GP-24M, Adhesive, Flexible, for Bonding Cellular Polystyrene Insulation.

**1.4 ACTION AND INFORMATION SUBMITTALS**

- .1 Submit printed product literature, specifications and data sheets for insulation in accordance with Section 01 33 00 – Submittal Procedures.

**1.5 QUALITY ASSURANCE**

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.

**1.6 PRODUCT DELIVERY, HANDLING AND STORAGE**

- .1 Deliver, store and protect materials from sunlight, weather and deleterious materials. Deliver insulation to site in sealed wrappings bearing manufacturer's name, product name and RSI or KSI value.
- .2 Store materials in a dry area protected from the elements. Store components off the ground and under cover and in accordance with manufacturers written instructions.

**1.7 PROTECTION**

- .1 Temporarily protect installed insulation from damage and action of the elements until it is permanently concealed or protected.
- .2 Protect polystyrene insulation from sunlight.

**1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction/ Demolition 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 Section 01 74 21 – Construction/ Demolition Waste Management and Disposal.

**PART 2 - PRODUCTS**

**2.1 INSULATION**

- .1 Exterior wall insulation: mineral wool board, type 1, to CAN/ULC-S701, density of 56 kg/m<sup>3</sup> (3.5 lb/cu.ft.), minimum R = 4.2 per 25 mm thickness.

**2.2 ACCESSORIES**

- .1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.80 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.
- .2 Impale clip adhesive: as recommended by impale clip manufacturer.
- .3 Adhesive: to CGSB 71-GP-24M as recommended by perimeter insulation manufacturer.
- .4 Fastening devices: stainless, cadmium plated or hot dipped galvanized steel.

**PART 3 – EXECUTION**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

**3.2 EXAMINATION**

- .1 Examine substrates and immediately inform Departmental Representative in writing of defects.
- .2 Prior to commencement of work ensure substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust, debris and other foreign substances.

**3.3 PREPARATION**

- .1 Clean substrates as required. Remove concrete surface ridges and deposits.

**3.4 INSTALLATION GENERAL**

- .1 Install insulation after building substrate materials are dry.
- .2 Do not install insulation until air barrier and transition membranes are complete and approved by Departmental Representative.
- .3 Provide under this Section all thermal insulation required except where it is specified to be part of other Sections. Where no particular type of insulation is indicated provide rigid fibrous type.
- .4 Where insulation is interrupted by construction elements, neatly fit insulation around such elements and pack spaces around elements with same insulation.
- .5 Install continuous uniform thermal insulation to maintain continuity of thermal protection to building elements and spaces.
- .6 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.
- .7 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures.
- .8 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.
- .9 Offset both vertical and horizontal joints in multiple layer applications.
- .10 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

**3.5 BATT INSULATION**

- .1 Provide fibrous batt insulation where indicated on drawings.
- .2 Completely fill spaces with insulation, leaving no gaps or voids. Do not pack insulation tighter than manufactured density of materials.

**3.6 CLEANING**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 06 10 00: Rough Carpentry
- .2 Section 07 21 00: Building Insulation.
- .3 Section 07 62 00: Sheet Metal Flashing and Trim.
- .4 Section 07 92 10: Joint Sealing.

### **1.2 ACTION AND INFORMATION SUBMITTALS**

- .1 Product Data: Provide data on material characteristics, performance criteria, limitations. Include manufacturer's documentation verifying suitability of application for expected application conditions.
- .2 Manufacturer's Installation Instructions: Indicate preparation, installation requirements and techniques, and product storage and handling criteria.

### **1.3 QUALITY ASSURANCE**

- .1 Maintain one copy of manufacturer's installation instructions on site.

### **1.4 PRE-INSTALLATION SITE MEETING AND MOCK-UP**

- .1 Convene site meeting to review air barrier application one week prior to commencing work of this section.
- .2 Incorporate air barrier installation with mock-up for exterior wall in accordance with requirements of Section 01 10 10 - General Instructions.

### **1.5 ENVIRONMENTAL REQUIREMENTS**

- .1 Do not install solvent curing sealants or vapor release adhesive materials in enclosed spaces without ventilation.
- .2 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.
- .3 Apply membrane during dry weather and to dry substrates only.

## **PART 2 - PRODUCTS**

### **2.1 SHEET MATERIALS**

- .1 Sheet Membrane Air Barrier: Modified bitumen, pressure/heat sensitive compound, self-adhering, thermofusible type or adhesive applied type, reinforced with polyethylene or glass scrim, nominal total thickness of 40 mils (1 mm).
- .2 Sealant: as recommended by air barrier manufacturer.

2.1 SHEET MATERIALS (continued)

- .3 Primer, adhesives, mastics: as recommended by air barrier manufacturer.
- .4 Substrate Cleaner and Thinner: as recommended by air barrier manufacturer.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- .1 Verify that surfaces and conditions are ready to accept the Work of this section.
- .2 Start of work shall imply acceptance of conditions.
- .3 Substrates shall be sound, reasonably smooth, dry, clean, free of frost, grease, oil and other substances which would adversely affect membrane adhesion.

3.2 PREPARATION

- .1 Remove loose or foreign matter which might impair adhesion of materials.
- .2 Clean and prime substrate surfaces to receive air barrier in accordance with manufacturer's instructions.
- .3 Remove sharp projections and repair defective areas in substrate.
- .4 Fill large open joints with flexible joint backing if recommended by air barrier membrane manufacturer.

3.3 INSTALLATION

- .1 Install materials in accordance with manufacturer's installation instructions.
- .2 Apply membrane horizontally to exterior face of parging and/ or where indicated on Drawings.
- .3 Completely cover substrates. Start at low point and proceed up the wall, overlapping subsequent sheets minimum 50 mm in the direction of water flow. Lap end joints minimum 100 mm.
- .4 At penetrations through membrane, accurately cut and fit membrane around penetrating component.
- .5 At wall openings return membrane into rough openings. Install additional strips of membrane to seal corners of openings.
- .6 Apply adhesive/ mastic to a minimum dry film thickness of 3 mm in hard to reach places to ensure continuity of air barrier.

**3.3 INSTALLATION (continued)**

- .7 At large joint gaps between dissimilar substrate materials slightly loop membrane to accommodate expected movement.
- .8 Extend air barrier membrane at junctions with roof systems and other wall systems to ensure continuity of air barrier.
- .9 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

**3.4 SELF-ADHESIVE MEMBRANE**

- .1 Apply primer with roller, brush or spray equipment. Do not apply more primer than that which can be covered, on the same working day, with air barrier membrane. Recoat primed areas which are not covered with membrane the same day.
- .2 Position membrane for alignment, with protective film in place. Roll membrane back, remove film and press membrane in place.
- .3 Roll completed membrane, including seams, with suitable roller, to ensure full contact with substrate.
- .4 Seal around masonry ties and other penetrations with adhesive/mastic.

**3.5 ADHESIVE APPLIED MEMBRANE**

- .1 Bond membrane with adhesive over entire substrate.
- .2 Roll membrane into freshly applied adhesive and press to ensure full contact.
- .3 Seal around masonry ties and other penetrations with adhesive/mastic.

**3.6 TORCH APPLIED MEMBRANE**

- .1 Apply heat to membrane with propane torch at point where membrane is in contact with substrate.
- .2 Apply sufficient heat to make bitumen tacky and press membrane onto substrate using a masonry trowel.
- .3 Heat membrane around masonry ties and use trowel to form a tight seal.
- .4 Exercise great caution when working with propane gas. Secure gas tanks in upright position, minimum 3.05 m from open flames. Handle tanks with care; avoid shocks. For each torch in use keep one ABC fire extinguisher near work area, filled and in proper working order. Provide suitable protective equipment for workmen to minimize exposure of skin to heated liquefied bitumen.

**3.7 FIELD QUALITY CONTROL**

- .1 Membrane manufacturer shall provide periodic site inspection and technical assistance to ensure work is properly executed.
- .2 Upon completion of membrane installation membrane manufacturer shall issue a report verifying that membrane installation is complete and satisfactory.
- .3 Do not cover membrane with other work until it has been inspected and approved by Departmental Representative.

**3.8 PROTECTION OF FINISHED WORK**

- .1 Protect finished Work under provisions of Section 01 10 10 - General Instructions.
- .2 Do not permit adjacent work to damage work of this section.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 01 74 21 – Construction/ Demolition Waste Management and Disposal.
- .2 Section 06 10 00 – Rough Carpentry.
- .3 Section 07 27 00 – Sheet Membrane Air Barrier.
- .4 Section 07 92 10 – Joint Sealing.

### **1.2 REFERENCES**

- .1 American Society for Testing and Materials (ASTM International)
  - .1 ASTM A879 / A879M – 12, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface.
  - .2 ASTM A792 / A792M – 10, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
  - .3 ASTM B32-08, Standard Specification for Solder Metal.
  - .4 ASTM B127 - 05(2009), Standard Specification for Nickel-Copper Alloy (UNS N04400) Plate, Sheet, and Strip.
  - .5 ASTM B370-12, Standard Specification for Copper Sheet and Strip for Building Construction.
  - .6 ASTM D523-08, Standard Test Method for Specular Gloss.
  - .7 ASTM D822-01 (2006), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .2 Canadian Roofing Contractors Association (CRCA):
  - .1 Roofing Specifications Manual.
- .3 Canadian Standards Association (CSA):
  - .1 CSA-A123.3-05 (R2010), Asphalt Saturated Organic Roofing Felt.
  - .2 CSA-B111-1974 (R2003), Wire Nails, Spikes and Staples.
- .4 Canadian General Standards Board
  - .1 CAN/CGSB-37-GP-11M, Application of Cutback Asphalt Plastic Cement.
  - .2 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .5 The Society for Protective Coatings (SSPC):
  - .1 SSPC-Paint 33-2006, Paint Specification No. 33: Coal Tar Mastic, Cold-Applied.
  - .2 SSPC-Paint System 10.02 (2004), Paint System No. 10.02, Cold-Applied Coal Tar Mastic System.

### **1.3 SAMPLES**

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate 150 mm x 150 mm samples of each type of sheet metal material, colour and finish.



#### 1.4 WASTE MANAGEMENT AND DISPOSAL

- .3 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/ Demolition Waste Management and Disposal.
- .4 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .5 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with the Waste Management Plan.
- .6 Place materials defined as hazardous or toxic in designated containers.
- .7 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .8 Divert unused metal materials from landfill to a metal recycling facility as approved by the Departmental Representative.
- .9 Unused sealant material must be disposed of at an official hazardous material collections site as approved by the Departmental Representative.
- .10 Unused sealant material must not be disposed of into the sewer system, into streams, lakes, onto the ground or in another location where it will pose a health or environmental hazard.
- .11 Fold up metal banding, flatten and place in a designated area for recycling.

### **PART 2 - PRODUCTS**

#### 2.1 SHEET METAL MATERIALS

- .1 Prefinished steel sheet: galvanized sheet steel, pre-treated, primed and finish coated with factory applied silicone modified polyester:
  - .1 Class F2S.
  - .2 Steel gauge: 0.91 mm (20 ga.)
  - .3 Colour to match colour of existing brick masonry – colour to be selected by Departmental Representative from manufacturer's standard range.
  - .4 Specular gloss: 30 units +/- 5 in accordance with ASTM D 523.
  - .5 Coating thickness: not less than 25 micrometres.
  - .6 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D 822 as follows:
    - .1 Outdoor exposure period 1,000 hours.
    - .2 Humidity resistance exposure period 1,000 hours.

#### 2.2 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint to SSPC Paint-33.
- .2 Plastic cement: to CAN/CGSB-37-GP-11M.

**2.2 ACCESSORIES (continued)**

- .3 Underlayment for prefinished metal flashing: to CAN/CGSB-51.32-M77, asphalt laminated 3.6 to 4.5 kg kraft paper, or No. 15 perforated asphalt felt to CSA A123.3.
- .4 Sealant: Type A sealant as specified in Section 07 92 10 - Joint Sealing.
- .5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured and as required to provide rigid support and positive securement for metal flashings.
- .6 Fasteners (for prefinished metal flashings): to CSA B111, non-corrosive, of same material as sheet metal of length and thickness suitable for application. For masonry substrate, use stainless steel anchors in nylon shields or other non-corrosive metal as recommended by sheet manufacturer.
- .7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

**2.3 FABRICATION - METAL FLASHINGS**

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details, details shown on the drawings, and the applicable requirements of other recognized industry practices.
- .2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm. Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- .1 Install sheet metal work in accordance with CRCA FL series details, and as detailed.
- .2 Use concealed fastenings except where approved before installation. Provide for thermal expansion of units. Set units true to lines and levels as indicated.
- .3 Install flashing units with watertight and weatherproof laps, joints and seams. Lock end joints of metal flashings and caulk with sealant inside of joint, prior to assembly.
- .4 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.

3.1 INSTALLATION (continued)

- .5 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock seams forming tight fit over hook strips, as detailed.
- .6 Insert metal flashing into reglets and under cap flashings to form weathertight junctions.
- .7 Turn top edge of flashing into a recessed reglet or mortar joint a minimum depth of 25 mm. Lead wedge the flashing securely into the joint.
- .8 Caulk flashings at reglets and cap flashings with sealant. Refer to Section 07 92 10 - Joint Sealing.
- .9 Imperfections in metal flashing work such as holes, dents, creases, or oil canning will not be accepted.

3.2 CLEANING

- .1 Clean exposed metal flashing surfaces. Remove all substances that might cause discolouration of metal.
- .2 Protect completed flashings to prevent damage or deterioration until completion of construction.

**END OF SECTION**

**PART 1 – GENERAL**

**1.1 RELATED SECTIONS**

- .1 Section 06 10 00 – Rough Carpentry
- .2 Section 07 27 00 – Sheet Membrane Air Barrier
- .3 Section 07 62 00 - Sheet Metal Flashing and Trim.

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM)
  - .1 ASTM C 919-12, 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 CAN/CGSB-19.17-M90, One-Component, Acrylic Emulsion Base Sealing Compound.
  - .3 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.
- .3 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .5 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .6 Underwriters' Laboratories of Canada (ULC):
  - .1 CAN/ULC-S102-03, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

**1.3 ACTIONS AND INFORMATION SUBMITTALS**

- .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 duplicate samples of each type of material and colour.
- .5 Cured samples of exposed sealants for each colour where required to match adjacent material.

**1.3 ACTIONS AND INFORMATION SUBMITTALS (continued)**

- .6 Submit manufacturer's instructions in accordance with Section 01 33 00 – Submittal Procedures. Instructions to include installation instructions for each product used.

**1.4 QUALITY ASSURANCE/ MOCK-UP**

- .1 Construct mock-up in accordance with Section 01 45 00 – Testing and Quality Control.
- .2 Construct mock-up to show location, size, shape and depth of joints complete with back-up material, primer, caulking and sealant.
- .3 Mock-up will be used to judge workmanship, substrate preparation, operation of equipment and material application.
- .4 Locate where directed.
- .5 Allow 24 hours for inspection of mock-up by the Departmental Representative before proceeding with sealant work.
- .6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. The accepted mock-up may remain as part of the finished Work.

**1.5 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.

**1.6 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Construction/ Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with the 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 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

**1.6 WASTE MANAGEMENT AND DISPOSAL (continued)**

- .7 Divert unused joint sealing material from landfill to an official hazardous material collections site approved by the 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.

**1.7 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.

**1.8 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 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 Ventilate area of Work as directed by the Departmental Representative 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.
- .2 When low toxicity caulks are not possible, confine usage to areas which off-gas to exterior or are contained behind air barriers.
- .3 Where sealants are qualified with primers use only these primers.

## 2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Sealant (Type "A"): Silicone, low modulus, high performance, one part, neutral curing, non-staining, construction grade, to CAN/CGSB-19.13-M87. Colour to match adjacent finishes to the approval of the Departmental Representative.
- .2 Sealant (Type "B"): Silicone, low modulus, high performance, one part, neutral curing, non-staining, construction grade, to CAN/CGSB-19.13-M87. Colour to match adjacent finishes to the approval of the Departmental Representative.
- .3 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.
- .4 Joint Cleaner.
  - .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

## 2.3 SEALANT SELECTION

- .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 perimeter of non-porous to porous materials (aluminum window frames, brick masonry, etc.).
  - .3 Perimeters of exterior openings where frames meet exterior facade of building (i.e. stone masonry).
  - .4 Sealant joints in exterior surfaces of stone masonry.
- .2 Apply sealant Type "B" at the following exterior locations:
  - .1 Between dissimilar (non-porous) materials in exposed locations except where specifically indicated otherwise.
  - .2 Perimeters of non-porous materials (metal to metal joints, aluminium window frames, metal flashings and other non-porous materials, etc.).
  - .3 Exterior joints in sheet metal work, including sheet metal flashing, and where not otherwise specified.

**2.4 JOINT CLEANER**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant as recommended by sealant manufacturer.
- .2 Primer: as recommended by sealant manufacturer.

**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.
- .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 Sealants:
  - .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.



3.6 APPLICATION (continued)

- .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 Upon completion of the work of this Section remove from the premises all surplus material, dirt and debris caused by the work of this Section and leave the installation clean.
- .2 Cleanup:
  - .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.

**END OF SECTION**