

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 03 53 00 –Concrete Repair and New Concrete Overlay.
- .2 Section 04 03 43.21 – Period Stone Masonry Re-Installing.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB).
 - .1 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
 - .2 CAN/CGSB-37.50-M89, Hot Applied, Rubberized Asphalt for Roofing and Waterproofing.
 - .3 CAN/CGSB-37.51-M90, Application for Hot-Applied Rubberized Asphalt, for Roofing and Waterproofing.
- .2 Canadian Standards Association (CSA International).
 - .1 CSA A123.17-05(R2014), Asphalt Glass Felt Used in Roofing and Waterproofing.
- .3 Department of Justice Canada (Jus).
 - .1 Canadian Environmental Protection Act (CEPA), 1999.
- .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 (TDGA), 1992.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .7 Definitions.
 - .1 HARA: hot fluid applied rubberized asphalt.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-installation Meetings: in accordance with 01 00 10 – General Instructions, convene pre-installation meeting one week prior to beginning waterproofing work.
 - .1 Ensure key personnel, site supervisor, Departmental Representative, speciality contractor – membrane system attend.
 - .1 Verify project requirements.
- .2 Special Review Coordination Meetings: in accordance with 01 00 10 – General Instructions, convene meetings with Departmental Representative and key personnel at stages noted following:

- .1 Coordination.
 - .1 Coordinate work performed in Section 03 53 00 –Concrete Repair and New Concrete Overlay with the following sequence of related work:
 - .1 Verification of preparation of concrete surface.
 - .2 Installation of membrane system.
 - .3 Performance of water testing for leakage.
 - .4 Special Review Meeting 4.
 - .5 Performance of membrane system adjustments.
 - .6 Performance of water testing for leakage.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 00 10 – General Instructions.
- .2 Product Data:
 - .1 Submit product data in accordance with Section 01 00 10 – General Instructions.
 - .2 Submit manufacturer's instructions, printed product literature and data sheets for hot fluid rubberized asphalt waterproofing and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Submit product data sheets for rubberized asphalt waterproofing. Include:
 - .1 Product characteristics.
 - .2 Performance criteria.
 - .3 Limitations.
- .4 Submit written declaration of compatibility between components of system and adjacent materials, as assembled in system, meet requirement of compatibility.
- .5 Manufacturer's Instructions: Submit manufacturer's instructions in accordance with Section 01 00 10 – General Instructions.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 00 10 – General Instructions.

1.5 QUALITY ASSURANCE

- .1 Field Quality Control.
 - .1 Perform water testing as specified in Part 3 – Execution.
 - .2 Inspection of HARA membrane application by testing laboratory designated by Departmental Representative.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 00 10 – General Instructions and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of rubberized asphalt, sealing compounds, primers and caulking materials.
- .4 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect rubberized asphalt materials.
 - .3 Replace defective or damaged materials with new.
 - .4 Provide and maintain dry, off-ground weatherproof storage.
 - .5 Stand roll materials on end.
 - .6 Remove only in quantities required for same day use.
 - .7 Store materials in accordance with manufacturer's written instructions. Prevent damage and loss of performance.
- .5 Packaging Waste Management.
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material for recycling in accordance with Section 01 00 10 – General Instructions.
 - .4 Fold up metal banding, flatten and place in designated area for recycling.

1.7 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

- .1 Ambient Conditions:
 - .1 Apply Hot Fluid-Applied Rubberized Asphalt Roofing membranes only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
 - .2 Do not install Hot Fluid-Applied Rubberized Asphalt Roofing membrane when air and substrate temperature remains below 5 degrees C, or when wind chill gives equivalent cooling effect.
 - .3 Install Hot Fluid-Applied Rubberized Asphalt Roofing membrane on dry substrate, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into system.
- .2 Temperature, relative humidity, moisture content.
 - .1 Apply HARA membranes only when surfaces and ambient temperatures are within manufacturers' prescribed limits.
 - .2 Do not install HARA membrane when air and substrate temperature remains below 5 degrees C, or when wind chill gives equivalent cooling effect.
 - .3 Install HARA membrane on dry substrate, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into system.

- .3 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of rubberized asphalt, sealing compounds, primers and caulking materials.

1.8 WARRANTY

- .1 For the Work of this Section 07 55 56.14 – Hot Fluid-Applied Rubberized Asphalt Waterproofing, the 12 months warranty period is extended to 24 months.

Part 2 Products

2.1 COMPATIBILITY

- .1 Compatibility between components of system and adjacent materials: Provide written declaration to Departmental Representative stating that materials and components, as assembled in system, meet this requirement.

2.2 DECK COVERING

- .1 Deck Covering: in accordance with Section 03 53 00 –Concrete Repair and New Concrete Overlay.

2.3 PRIMERS

- .1 Surface Conditioner: Asphalt primer to CGSB 37-GP-9Ma.

2.4 RUBBERIZED ASPHALT

- .1 Hot applied rubberized asphalt: to CAN/CGSB-37.50.

2.5 REINFORCEMENT

- .1 Membrane reinforcement: fabric, glass mat or spun-bonded polyester as recommended by membrane manufacturer.
- .2 Membrane reinforcement at 90° connections and at drains: elastomeric sheet, Butyl, EPDM or Chloroprene rubber, uncured neoprene, thickness minimum 1.6 mm.

2.6 SEPARATION/PROTECTION SHEET

- .1 Asphalt impregnated glass felt: to CSA A123.17, Type IV, modified bitumen sheet with 95g.m² fibreglass reinforcing, 2 mm thick.

2.7 POLYSTYRENE INSULATION

- .1 Extruded polystyrene (XPS) insulation: to CAN/ULC-S701, Type 4, square edges. Compressive strength: minimum 414 kPa. Thickness to be determined on site: allow for 25 mm thick sheets. Custom cut standard sheets to suit installation locations.

2.8 SEALERS

- .1 Use rubberized asphalt as specified above in Part 2 – Rubberized Asphalt.

2.9 DRAINAGE SHEET WITH FILTER FABRIC

- .1 Composite drainage sheeting:
 - .1 Dimpled impermeable polypropylene drainage sheet with woven filter fabric bonded to one side, 10 mm thick.
 - .2 Geo-textile net core with non-woven filter fabric bonded to one side, 6 mm thick.

2.10 STONE PEA GRAVEL SETTING BED

- .1 Stone pea gravel: 6 to 10 mm size, well graded crushed stone, opaque, non-porous, washed, free from fines, splinters, ice and snow.

2.11 FILTER FABRIC

- .1 Water permeable polymeric fabric: Woven polypropylene sheet.

2.12 PEDESTAL ASSEMBLY SUPPORTS

- .1 Custom pedestal assembly and levelling plates: high density polyethylene with integral spacer ribs on upper surface.

2.13 ACCESSORIES

- .1 New copper sheet drains: 1.2 mm thick copper sheet.

2.14 SOURCE QUALITY CONTROL

- .1 Submit laboratory test reports in accordance with Section 01 00 10 – General Instructions.
- .2 Submit laboratory test reports certifying compliance of rubberized asphalt with specification requirements.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for hot fluid applied asphalt roofing installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative 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 Departmental Representative.

3.2 SUBSTRATE EXAMINATION

- .1 Examine substrates and immediately inform Departmental Representative in writing of defects.

- .2 Prior to beginning of Work ensure:
 - .1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, contamination and swept clean of dust and debris.

3.3 PREPARATION - PROTECTION

- .1 Cover walls, walks and adjacent work where materials hoisted or used.
- .2 Clean off drips and smears of bituminous material immediately.
- .3 Dispose of rain water away from face of building until drains installed and connected.
- .4 Protect from traffic and damage. Comply with precautions deemed necessary by Departmental Representative.
- .5 Place plywood runways over work to enable movement of material and other traffic.
- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.
- .7 Free substrates from curing compounds, dust and loose particles, grease, paint, frost, form oil and other material detrimental to bond of membrane materials.
- .8 Heat membrane in double shell indirect fired melter using high flash point oil as heat transfer medium. Equip melter with positive mechanically operated agitator, and thermometers. Under no circumstances is membrane material to be heated in direct heating kettle.

3.4 PREPARATION OF CONCRETE DECK

- .1 Do preparation work in accordance with Section 03 53 00 –Concrete Repair and New Concrete Overlay.
- .2 Fill surface depressions and voids in accordance with Repairs for Small Areas of Reinforced Concrete Slab in Section 03 53 00 –Concrete Repair and New Concrete Overlay.
- .3 Apply primer to dry substrate in accordance with CAN/CGSB-37.51.
- .4 Install new copper sheet drains.

3.5 MEMBRANE

- .1 Install hot applied rubberized asphalt, reinforcement fabric and flashings in accordance with CAN/CGSB-37.51.
- .2 Make connections with existing membrane system in accordance with membrane manufacturer's standard details.
- .3 Build cants around installed metal dowels with liquid waterproofing membrane.

3.6 SEPARATION/PROTECTION SHEET

- .1 Place separation sheet in asphalt while still hot enough to assure good bond but not so hot as to damage sheet.
- .2 Layout sheets following drainage directions indicated on Contract Drawings.
 - .1 Install with seams parallel to slope direction and to direction of water flow.
 - .2 Install with minimum seams perpendicular to direction of intended water flow.
- .3 Begin application at low end, lapping sheets 50 mm.
- .4 Carry sheet up vertical faces over rubberized asphalt while still warm.

3.7 WATER TESTING – TEST OF MEMBRANE AND PROTECTION SHEET

- .1 Water leakage test area:
 - .1 Upper landings, stairs and central landing.
- .2 Leave waterproofing exposed until inspection of testing is completed and reviewed by Departmental Representative.
- .3 Flood entire area for 20 minutes. Check for leaks 24 hours after end of test with Departmental Representative.
- .4 If leaks occur repair and retest.

3.8 DRAINAGE SHEETING INSTALLATION

- .1 Install drainage sheeting types at following locations:
 - .1 Landings: dimpled impermeable polypropylene drainage sheet.
 - .2 Stairs: Geo-textile net core with non-woven filter fabric.

3.9 INSULATION INSTALLATION

- .1 Install insulation on Lower Landing as support pads for pedestal assemblies.
 - .1 Custom cut insulation boards approximately 450 mm x 450 mm square to support pedestal assemblies and fit within areas of sloped concrete indicated on Contract Drawings.
 - .2 Allow for drainage space between insulation boards. Do not butt boards.

3.10 FILTER FABRIC APPLICATION

- .1 Apply continuous layer of filter fabric unbonded over installed protection sheet lapping joints 300 mm minimum.
- .2 Place filter fabric around drains and other penetrations.
- .3 Extend filter fabric 400 mm past edge of stair nosings at landings and at vertical elements. Ensure enough filter fabric extends to wrap up and over stone pea gravel bed 300 mm.

3.11 PEDESTAL ASSEMBLY INSTALLATION

- .1 Place pedestal assemblies where indicated on Contract Drawings.
- .2 Adjust pedestal assembly heights to suit each individual granite slab and step and to suit indicated slopes for re-installed granite masonry.
- .3 Control granite slabs' and steps' slopes using custom pedestal assemblies. Quantity of pedestal assemblies as needed.
- .4 Correlate placement of custom pedestal assemblies with locations of grinded smooth areas on underside of granite slabs and steps.

3.12 STONE PEA GRAVEL BED

- .1 Apply stone pea gravel bed, as soon as possible after placement of fabric.
- .2 Spread stone ballast to thicknesses to attain specified slopes for granite slabs above as indicated on Contract Drawings.
- .3 After placing of stone pea gravel on filter fabric, at landings wrap extended edges of filter fabric up and over pea gravel at stair nosings and at vertical elements.
- .4 Re-install salvaged granite slabs on stone pea gravel bed in accordance with Section 04 03 43.21 – Period Stone Masonry Re-Installing.

3.13 FIELD QUALITY CONTROL

- .1 Inspection and testing of HARA membrane application will be carried out by testing laboratory designated by Departmental Representative.
- .2 Costs of tests paid by Departmental Representative as specified in Section 01 00 10 – General Instructions.
- .3 Perform water testing in accordance with Water Testing articles in Part 3 of this Section.

3.14 WATER TESTING – TEST WITH STONE PEA GRAVEL

- .1 Water leakage test area:
 - .1 Upper landings and stairs, and central landing.
- .2 Leave waterproofing and stone pea gravel exposed until inspection of testing is completed and reviewed by Departmental Representative.
- .3 Flood entire area for 20 minutes. Inspect for leaks 24 hours after end of test with Departmental Representative.
- .4 If leaks occur repair and retest.

3.15 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 00 10 – General Instructions.
 - .1 Leave Work area clean at end of each day.

- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 00 10 – General Instructions.
- .3 Clean Work in accordance with Section 01 001 10 – General Instructions.
- .4 Clean soiled surfaces, spatters, and damage caused by Work of this Section.
- .5 Construction Waste Management.
 - .1 Separate waste materials for reuse, recycling and disposal in accordance with Section 01 00 10 – General Instructions.
 - .2 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .3 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Provincial and Municipal regulations.
 - .4 Collect, package and store part, unused containers of asphalt, sealing compounds and primers and their contents for recycling and return to recycler in accordance with Provincial and Municipal regulations.

3.16 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by hot fluid-applied rubberized asphalt waterproofing installation.

3.17 RE-INSTALLATION OF GRANITE MASONRY

- .1 Refer to Section 04 03 43.21 – Period Stone Masonry Re-Installing for re-installation of granite slabs and steps.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 07 55 56.14 – Hot Fluid-Applied Rubberized Asphalt Waterproofing.
- .2 Section 07 92 00 – Joint Sealants.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A240/A240M-15b, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- .2 Canadian Roofing Contractors Association (CRCA)
 - .1 Roofing Specifications Manual, current edition.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 00 10 – General Instructions.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 29 - Health and Safety Requirements.
- .3 Samples:
 - .1 Submit duplicate 50 mm x 50 mm samples of each type of sheet metal material, finishes and colours.
- .4 Quality assurance submittals: submit following in accordance with Section 01 00 10 – General Instructions.
 - .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.
 - .2 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3, FIELD QUALITY CONTROL.

1.4 QUALITY ASSURANCE

- .1 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section and on-site installation, with key personnel and Departmental Representative in accordance with Section 01 00 10 – General Instructions to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other building subtrades.
 - .4 Review manufacturer's installation instructions and warranty requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 00 10 – General Instructions.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions.

Part 2 Products

2.1 SHEET METAL MATERIALS

- .1 Stainless steel sheet: to ASTM A240/A240M, Type 316, 1.6 mm thick with 2D finish.

2.2 ACCESSORIES

- .1 Underlay for metal flashing: in accordance with Section 07 55 56.14 – Hot Fluid-Applied Rubberized Asphalt Waterproofing.
- .2 Sealants and backer rods: in accordance with Section 07 92 00 – Joint Sealants.
- .3 Fasteners: of same material as sheet metal, to CSA B111, size and length to suit metal flashing application in reglet.

2.3 FABRICATION

- .1 Fabricate metal flashings in accordance with applicable CRCA 'FL' series details.
- .2 Form pieces in 2400 mm maximum lengths.
 - .1 Make allowance for expansion at joints.
- .3 Form sections square, true and accurate to size, free from distortion and other defects detrimental to performance.

2.4 METAL FLASHINGS

- .1 Form flashings to profiles indicated of 1.6 mm thick stainless steel.

2.5 REGLETS

- .1 Re-use existing reglets in masonry.
- .2 New reglets in masonry to size and locations indicated on Contract Drawings.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 PREPARATION

- .1 Clean out existing reglets for re-use.
- .2 Grind new reglets in masonry to specified size and locations indicated on Contract Drawings.

3.3 INSTALLATION

- .1 Install sheet metal work as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay under sheet metal in accordance with Section 07 55 56.14 – Hot Fluid-Applied Rubberized Asphalt Waterproofing.
 - .1 Secure in place and lap joints 100 mm.
- .4 Turn top edge of flashing into recessed reglet minimum of 25 mm. Fasten flashing securely into joint.
- .5 Caulk flashing at reglet with sealant in accordance with Section 07 92 00 – Joint Sealants.

3.4 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.5 CLEANING

- .1 Proceed in accordance with Section 01 00 10 – General Instructions.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

Project No.:
R.080745.300

Section 07 62 00
SHEET METAL FLASHING
Page 4

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 00 10 – General Instructions.
- .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.
 - .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 2 copies of WHMIS MSDS in accordance with Section 01 00 10 – General Instructions.
- .3 Samples:
 - .1 Submit 2 samples of each type of material and colour.
 - .2 Cured samples of exposed sealants for each colour where required to match adjacent material.
- .4 Manufacturer's Instructions:
 - .1 Submit instructions to include installation instructions for each product used.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 00 10 – General Instructions.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 00 10 – General Instructions and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management.
 - .1 Remove for reuse and recycling pallets, crates, padding and packaging materials as specified in accordance with Section 01 00 10 – General Instructions.

1.5 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.

1.6 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.

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 Where sealants are qualified with primers use only these primers.

2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Silicones one part: ultra-low modulus, non-sag to CAN/CGSB-19.13 Type 2, MCG-2-40, resistant to ultraviolet light, moisture, salts and extreme temperature variations, colour to match existing granite stones.

2.3 FINISH MATERIAL

- .1 Sand Aggregate for Sealant Finish: Crushed granite aggregate, grey colour to closely match adjacent granite.

2.4 BACK-UP MATERIALS

- .1 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 Horizontal Joint Filler:
 - .1 Semi-rigid, non-extruding, asphalt-saturated fibre joint filler, minimum 70% compression recovery, thickness to suit joint width.

2.5 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 are acceptable for joint sealants installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative 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 Departmental Representative.

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.
 - .9 Camouflage joint: Add sand aggregate neatly over caulked joint for review by Departmental Representative.
- .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 FIELD QUALITY CONTROL

- .1 Manufacturer's field services: provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.8 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 00 10 – General Instructions.
 - .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 00 10 – General Instructions.
- .3 Construction Waste Management.
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions.
 - .2 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.9 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