Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 04 05 10.02 – Common Work Results for Masonry.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM).

.1 ASTM D412-06AE2: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

.2 ASTM D882-10: Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

.3 ASTM E154-08A: Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

.2 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-37.58-M86 Membrane, Elastomeric, Cold-Applied Liquid, for Non-Exposed Use in Roofing and Waterproofing.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Provide 3 copies of most recent technical waterproofing components data sheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Provide three copies of WHMIS MSDS.

.3 Samples: submit 3 samples 300 mm x 300 mm.

.4 Manufacturer's Installation Instructions.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Provide and maintain dry, off-ground weatherproof storage.

.2 Handle waterproofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance.

.3 Store and manage hazardous materials in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.4 Packaging Waste Management: remove in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

.2 Fold up metal banding, flatten and place in designated area for recycling.

1.5 FIELD CONDITIONS

.1 Ambient Conditions

.1 As recommended by the manufacturer.

Part 2 Products

2.1 PERFORMANCE CRITERIA

.1 Waterproofing System: capable of resisting moisture/water.

.2 Compatibility between components of waterproofing system is essential. Provide written declaration to Departmental Representative stating that materials and components, as assembled in system, meet this requirement.

2.2 MEMBRANE

.1 Styrene-Butadiene-Styrene (SBS) modified bitumen, self-adhering sheet membrane complete with a cross-laminated polyethylene film.

.1 Membrane Thickness: 1 mm (40 mils).
.2 Film Thickness: 4.0 mils.
.3 Service Temperature: Minus 40 C to 70 C.
.4 Elongation (ASTM D412): 200% minimum.
.5 Tensile Strength (ASTM D882): 40 MPa minimum.
.6 Puncture resistance (ASTM E154):178 N minimum.
.7 Water tightness (CAN/CGSB-37.58-M86): Pass

2.3 ADHESIVE PRIMER

.1 Adhesive for securing membrane as recommended by the manufacturer.

2.4 FASTENING BARS AND FASTENERS

.1 Sizing as recommended by the manufacturer.

.2 Provide in stainless steel.

Part 3 Execution

3.1 QUALITY OF WORK

.1 Do examination, preparation and waterproofing Work in accordance with manufacturer’s directions and as indicated.

.2 Do priming for in accordance with manufacturer's written recommendations.

3.2 EXAMINATION OF CONDITIONS

.1 Verification of Conditions:

.1 Inspect with Departmental Representative substrate conditions to determine readiness to proceed.

.2 Evaluation and Assessment: prior to beginning of work ensure:

.1 Substrate is firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris. Do not use calcium or salt for ice or snow removal.

.3 Do not install waterproofing materials during rain or snowfall.

3.3 PROTECTION OF IN-PLACE CONDITIONS

.1 Cover adjacent work.

3.4 PRIMING AND INTALLATION OF MEMBRANE

.1 Apply primer to substrate at the rate recommended by manufacturer.

.2 Membrane:

.1 Complete installation of membrane prior to installing masonry.

.2 Lap membrane sheet minimum 100 mm and seal.

.3 Properly secure membrane to their support, without sags, blisters, fishmouths or wrinkles.

.4 Do Work in accordance with manufacturer's recommendations.

.5 Allow slight space between slabs to permit drainage of surface water.

.6 Shim up as required to obtain smooth surface transition from slab to slab.

.3 See Section 04 05 50 – Historic Masonry Procedures for additional requirements.

3.5 CLEANING

.1 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.

.2 Waste Management: separate waste materials for in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

- .1 ASTM E 96/E 96M-05, Standard Test Methods for Water Vapour Transmission of Materials.
- .2 ASTM C518-10, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- .3 ASTM D1621-10, Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- .4 ASTM D2842-97, Standard Test Method for Water Absorption of Rigid Cellular Plastics.

.2 Underwriters Laboratories of Canada (ULC)

- .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.

1.2 SUBMITTALS

.1 Product Data:

- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's Instructions:

- .1 Submit manufacturer's installation instructions.

1.3 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 and criteria and physical requirements.

.3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

1.4 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 for recycling in accordance with Waste Management Plan.

Part 2 Products

2.1 LOW DENSITY EXTRUDED RIGID INSULATION

.1 Foundation Frost protection insulation at side of footing: Extruded polystyrene (XPS): to CAN/ULC-S701**.**

.1 For below grade use, Type 4.

.2 Thermal Resistance: to ASTM C518, RSI 0.88.

.3 Compressive strength: to ASTM D1621, minimum 270 kPa.

.4 Water Absorption: to ASTM D2842, 0.7 %.

.5 Water Vapour Permeance: to ASTM E96, 90 ng/Pas m2 max.

.6 Edges: shiplapped.

.7 Thickness: 100 mm.

.8 Size: 610 x 2440 mm.

2.2 HIGH DENSITY EXTRUDED RIGID INSULATION

.1 Foundation Frost protection insulation at underside of footing. Extruded polystyrene (XPS): to CAN/ULC-S701.

.1 For below grade use, Type 4.

.2 Thermal Resistance: to ASTM C518, RSI 0.88.

.3 Compressive strength: to ASTM D1621, minimum 275 kPa.

.4 Water Absorption: to ASTM D2842, 0.3 %.

.5 Water Vapour Permeance: to ASTM E96, 57.2 ng/Pas m2 max.

.6 Edges: shiplapped.

.7 Thickness: 100 mm.

.8 Size: 610 x 2440 mm.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 WORKMANSHIP

.1 Install insulation after building substrate materials are dry.

.2 Install insulation to maintain continuity of thermal protection to building elements and spaces.

.3 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures and CAN/CGA-B149.1 and CAN/CGA-B149.2 type B and L vents.

.4 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.

.5 Do not enclose insulation until it has been inspected and approved by the Departmental Representative.

3.3 EXAMINATION

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

.2 Prior to commencement of work ensure:

.1 Verify that the insulation boards and adjacent materials are compatible.

.2 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.4 FOUNDATION FROST INSULATION

.1 Ensure substrate is flat.

.2 Install boards under and to perimeter of concrete foundation as indicated.

.3 Place boards in a method to maximize contact with bedding. Stagger side and end joints. Butt edges and ends tight to adjacent boards.

.4 Follow slopes to maintain insulation below grade.

.5 Cut and fit insulation tight to protrusions or interruptions to insulation plane.

3.5 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 04 05 10.02 - Common Work Results for Masonry.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)

- .1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Incorporating Amendment No. 1).
- .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
- .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.
- .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
- .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.2 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.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

- .1 Material Safety Data Sheets (MSDS).

1.3 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 3 copies of sealant manufacturer’s colour chart for selection of colour by Departmental Representative.

.4 Submit 3 samples of each type of material and colour chosen by Departmental Representative.

.5 Submit manufacturer's instructions.

- .1 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 - 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 Locate where directed by Departmental Representative.

.4 Allow 72 hours for inspection of mock-up by Departmental Representative before proceeding with sealant work.

.5 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. Approved mock-up may remain as part of finished Work if approved by the Departmental Representative.

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.

.3 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.6 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.

1.7 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 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 Departmental Representative by use of approved portable supply and exhaust fans.

Part 2 Products

2.1 SEALANT MATERIALS

.1 Where sealants are qualified with primers use only these primers.

.2 For installation to masonry, sealants and their primers are not to stain the masonry.

2.2 SEALANT MATERIAL DESIGNATIONS

.1 Type 1: Urethanes One Part.

.1 Semi-Self-Leveling to CAN/CGSB-19.13, Type 1.

.2 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^3 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.

2.3 SEALANT SELECTION

.1 Joints in masonry and concrete construction: Sealant Type: 1.

2.4 JOINT CLEANER

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

.2 Primer: as recommended by 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 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 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.

END OF SECTION