

1.0 GENERAL

1.1 DESCRIPTION

- .1 Comply with the General Conditions, Supplementary Conditions, the requirements of Division 1, and any supplements and/or addenda.

1.2 RELATED WORK

- .1 Building Insulations. Section 07210

2.0 PRODUCTS

2.1 SHEET VAPOUR BARRIER

- .1 Polyethylene film: to CAN2-51.33-M80, Type 1, 1/4" (6mm) thick.
- .2 Rubberized Membrane: self-adhesive rubberized asphalt to waterproof polyethylene, release paper on surface, 40 mil thickness, Grace "Perma-Barrier" or Bakelite "Blueskin SA".
- .3 Sprayed Foam: spray applied polyurethane having integral fire inhibitors (flame/smoke/fuel 10/500/0 when tested to ASTM E84.84 or CAN2-S102-M82), as "Safethane 40" by Enerlab West, or approved equivalent. Install at u/s of deck to exterior wall and roof connections.

2.2 ACCESSORIES

- .1 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 2" (50mm) wide for lap joints and perimeter seals, 1" (25mm) wide elsewhere.
- .2 Staples: minimum 1/4" (6mm) leg.
- .3 Adhesives: as recommended by manufacturer.
- .4 Electrical box pan: Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

3.0 EXECUTION

3.1 INSTALLATION

- .1 Ensure services are installed and inspected prior to installation of vapour barrier.
- .2 Install sheet vapour barrier in locations shown on drawings to form continuous barrier.
- .3 Use sheets of largest practical size to minimize joints.
- .4 Inspect sheets for continuity. Repair punctures and tears with sealing tape before work is concealed.

3.2 ELECTRICAL BOXES

- .1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:
 - .1 Install moulded box vapour barrier or wrap boxes with film sheet providing minimum 300 mm perimeter lap flange.

- .2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

3.3 SURFACE OPENINGS

- .1 Cut sheet vapour barrier to form openings and ensure material is lapped and sealed to frame.

3.4 PERIMETER SEALS

- .1 Seal perimeter of sheet vapour barrier as follows:
 - .1 Apply continuous bead of sealant to substrate at perimeter of sheets.
 - .2 Lap sheet over sealant and press into sealant bead.
 - .3 Install staples through lapped sheets at sealant bead into wood substrate.
 - .4 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

3.5 LAP JOINT SEALS

- .1 Seal lap joints of sheet vapour barrier as follows:
 - .1 Attach first sheet to substrate.
 - .2 Lap adjoining sheet minimum 6" (150mm).
 - .3 Install staples through lapped sheets into substrate or use adhesive.
 - .4 All vapour barrier lap joints shall occur vertically, over stud, lap and seal with beads of non-hardening acoustic grade caulking to CGSB 19-GP.21

3.6 BARRIER UNDER SLABS

- .1 Lay polyethylene membrane vapour barrier over sub-base immediately prior to void form placement.
- .2 Lap membrane in full widths, lengths a minimum 6". Do not seal laps, joints. Lap to divert moisture to drain.
- .3 Cut tightly and seal to all service projections.

- END OF SECTION -

1.0 GENERAL

1.1 DESCRIPTION

- .1 Comply with the General Conditions, Supplementary Conditions, the requirements of Division 1, and any supplements and/or addenda.

1.2 RELATED SECTIONS

- .1 Building Insulation Section 07210

2.0 PRODUCTS

2.1 SHEET AIR BARRIER

- .1 Polypropylene film: UV-resistant spun bounded fibres and platinum coloured coating, meets or exceeds the following specifications and properties:
 - : Basis weight (ASTM D-646) 2.4 oz/yd² (80.56 g/m²) 16.5 lbs/1000ft²
 - : Thickness (ASTM D-1777) 0.0095 (0.2413mm) in bursting strength (ASTM D-774) 123 psi (86477 kg/m²)
 - : Tensile strength (ASTM D-1682-GRAB, ASTM D-4632-GRAB) 90 lbs md 76 lbs xd (41 kg md 34.5 kg xd)
 - : Trapezoidal tear (ASTM D-1117) 18 lbs md 23 lbs xd (8.18 kg md 10.45 kg xd)
 - : Gurley hill porosity (TAPPI T-460, ASTM D-726) 10-20 sec/100cc
 - : Moisture vapour transmission rate (ASTM E-96, procedure A) 125 gm/m²/ 24 hr
 - : Flame Spread Index (ASTM E-84-86) 0 Smoke Developed Value 15
 - : Roll sizes (1,000 ft²/roll) 9' x 111.1' 4.5' x 222.2' (1.37M x 67.6M)
- .2 Acceptable Products
 - .1 "Tyvar Housewrap" by Reemay Inc. // "Tyvek CommercialWrap" by DuPont.

2.2 FLASHING

- .1 Self-adhering polyethylene laminated flashing with Butyl Rubber adhesive to AAMA 711-07 Voluntary Specification for Self-Adhering Flashing for installation of exterior wall fenestration.
- .2 Acceptable Products
 - .1 DuPont "FlexWrap NF", 9" width.

3.0 EXECUTION

3.1 INSTALLATION

- .1 General:
 - .1 Apply Tyvar/Tyvek immediately after framing is completed and insulation has been installed and before windows and doors are installed.

- .2 If applying over sheathing, use large-head sheathing nails long enough to penetrate and grip framing studs.
 - .3 Alternatively attach Typar/Tyvek to gypsum board sheathing with staples.
 - .4 Overlap all joints a minimum of 6" (150mm) and completely tape all joints with manufacturer's recommended tape.
 - .5 Tape all penetrations through the membrane namely brick ties, conduit and duct sleeves.
 - .6 Wrap all fenestration rough opening with Self-Adhering "FlexWrap NF" and seal to air barrier and vapour barrier.
- .2 Application:
- .1 Apply in accordance with manufacturer's instructions.
 - .2 Pull the fabric snug before fastening. Overlap each subsequent roll up to 18 inches ensuring that guide marks align with studs.

- END OF SECTION-

1.0 GENERAL

1.1 DESCRIPTION

- .1 Comply with the General Conditions, Supplementary Conditions, the requirements of Division 1, and any supplements and/or addenda.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- | | | |
|----|------------------------|---------------|
| .1 | Cast-In-Place Concrete | Section 03300 |
| .2 | Earthwork | Section 02200 |
| .3 | Sheet Vapour Barrier | Section 07192 |
| .4 | Sheet Air Barriers | Section 07198 |
| .5 | Gypsum Board | Section 09250 |

1.3 QUALITY ASSURANCE

- .1 Execute this work by a firm who has adequate plant, equipment and skilled workers to perform work expeditiously and is known to have been responsible for satisfactory installations similar to that specified for the past immediate five (5) years.
- .2 Employ only workers having experience and an understanding of the design principles of air barriers.

1.4 SUBMITTAL

- .1 Conform to Section 01330.
- .2 Submit samples of insulation, adhesives and accessories for review prior to purchase of materials for the Work.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver materials to the site, in original unopened packages, clearly indicating manufacturer's name, brand name, and other identifying information.
- .2 Store materials in a dry location off-the-ground, and in such a manner as to prevent damage or intrusion of foreign matter. Replace all materials that become damaged or otherwise unfit for use during delivery, or storage without additional charge.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Perimeter Insulation: Extruded polystyrene, Type 4 "Styrofoam SM" by:
Dow Chemical Canada Inc. or approved equal.
"R" Value: 5 per inch.
Thickness: As detailed.
Location: Around exterior walls and foundation where noted.

- .2 Hi Density Insulation: Extruded polystyrene, Type VI "Styrofoam HIGHLOAD 40"
Dow Chemical Canada Inc. or approved equal.
"R" Value: 5 per inch.
Thickness: As detailed.
Compressive Strength: 40 psi.
Location: under thickened edge slab where noted.
- .3 Loose Batt Insulation: "Friction Fit Batt" by Fiberglas Canada Inc. or approved equal.
- .4 Sprayed Foam Insulation: spray applied polyurethane having integral fire inhibitors (flame/smoke/fuel 10/500/0 when tested to ASTM E84.84 or CAN2-S102-M82), as "Safethane 40" by Enerlab West, or approved equivalent. Install at all exterior door frames
- .5 Gypsum Board: exterior grade, 1/2" (13mm) thick, to CSA A82.27-M1977.
- .6 Gypsum Board Fasteners: recommended by gypsum board supplier and approved by the Contract Administrator.
- .7 Adhesive: recommended by insulation supplier for particular substrate.
- .8 Sealant: "795" by:
- Dow Corning Canada Inc.
6747 Campbello Road
Mississauga, Ontario L5N 2M1
Tel: (416) 826-9600
or approved equal.
- .9 Building Paper: No.15 perforated asphalt felt to CSA A123.3-M1979.

3.0 EXECUTION

3.1 COORDINATION

- .1 Coordinate this work with that of other trades in regard to timely phasing to prevent prolonged exposure and damage to the insulation, and ensure continuity of the air barrier between all elements of the building.

3.2 INSTALLATION

- .1 Install at exterior foundation walls and footing prior to backfilling.
- .2 Take measures to ensure that insulation is not damaged or displaced during backfilling.
- .3 Rigid wall insulations shall be installed horizontally, and mechanically fastened at maximum 16" o.c. both ways. Butt joints tightly, offset joints and Use only insulation boards free from chipped or broken edges. In below grade locations where there is no footing, fasten 38 x 90 mm pressure treated support at bottom of insulation.
- .4 Install insulation after building substrate materials are dry.
- .5 Install insulation to maintain continuity of thermal protection to building element and spaces.
- .6 Install loose batt insulation in all voids, where indicated on the drawings. Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts. Around exterior windows and doors and other protrusions.

- .7 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.
- .8 Offset both vertical and horizontal joints in multiple layer applications.
- .9 Install gypsum board sheathing, with joints butted, over structural steel studs.
- .10 Where building paper or Tyvek / Typar is specified, mop all joints around bayonet ties penetrating paper with asphalt adhesive so as to prevent moisture infiltration.
- .11 Install sprayed foam insulation to all exterior door and window frames.
- .12 Install sprayed foam insulation to all floor joists to foundation wall ends.

- END OF SECTION -

1.0 GENERAL

1.1 RELATED SECTIONS

- .1 Flashing and Trim Section 07620

1.2 DESCRIPTION

- .1 Preformed prefinished site assembled interlocking standing seam metal roof system complete with metal and membrane flashing, trim, closures, seals, and all attaching hardware.

1.3 REFERENCE DOCUMENTS

- .1 Codes and standards referenced in this section refer to the latest edition thereof.
- .2 Pre-formed roofing systems shall be installed by an applicator trained and approved by the roofing system manufacturer in the proper installation of the specific system.
- .3 The Can. Roofing Contractors Association (CRCA) Standards Manual, latest edition, shall be used as a reference standard.
- .4 American National Standards Institute (ANSI)
- .1 ANSI B18.6.4, Screws, Tapping and Metallic Drive, Inch Series, Thread Forming and Cutting.
- .5 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.
- .2 CAN/CGSB-93.4, Galvanized Steel and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished Residential.
- .6 Canadian Standards Association (CSA)
- .1 CSA B111, Wire Nails, Spikes and Staples.

1.4 PERFORMANCE REQUIREMENTS

- .1 Sheet metal roof system and fastenings shall be designed to resist wind positive and negative pressure and snow loads (including drift) normal to the plane of the assembly in accordance with Man. Building Code 2010 Climatic Information, local rainfall and wind negative and positive pressure 1:30 years, temperature range -301C to +701C.
- .2 Under the preceding conditions there shall be no failure or permanent set or unsightly buckling or undue stress on anchors, fasteners, seals. Roofing shall remain water and weather-tight and shall not rattle or deform.

1.5 QUALITY ASSURANCE AND SUBSTITUTIONS

- .1 Manufacturer and applicator of the metal roofing system shall demonstrate at least ten years experience in fabrication and installation of architectural metal roofing projects similar in scope.
- .2 Substitutions of alternate metal roofing only in accordance with B7.
- .3 Manufacturer and/or approved applicator must have the single source facility to provide:
- .1 Total design of the metal roofing system.
- .2 Technical literature on tested metal roofing systems.

- .3 Engineering and drafting facilities.
- .4 Fabrication of metal roofing system and associated components.
- .5 Technical representatives.
- .6 Field installation by approved certified erectors.

1.6 SUBMITTAL

- .1 Submit samples and drawings in accordance with Division 1.
- .2 Submit samples of materials, formed joints, fastenings, snow guards, metal colour, for approval prior to commencing work concerned.
- .3 Provide detail drawings showing standing seam/cleat assembly, flashing, end returns. Show spacing of seams and laps.
- .4 Snow Guard Layout showing snow guard spacing and location, roof dimensions and ground snow load.

1.7 HANDLING AND PROTECTION

- .1 Store roofing products in accordance with manufacturer's recommendations.
- .2 Protect prefinished steel during fabrication, transportation, site storage and erection, in accordance with CSSBI Standards.

1.8 GUARANTEE/WARRANTY

- .1 Upon completion of the Work provide metal roofing manufacturer's ten (10) year warranty certificate in the City's name.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Galvanized Sheet Steel: to ASTM A446M-85, commercial quality, Z275 zinc coated to ASTM A525-86. Thickness minimum as specified.
- .2 Preformed metal roofing including all trims, flashing:
 - Pre-finished Metal Roof Panels with Hidden Fastener
Vic West – Prestige – 16” panel width, 26 gauge
colour - to be selected from standard “WeatherX” colour.
 - Pre-finished Perforated Metal Soffit Panels
Vic West profile CL7015R, 26 gauge, perforated
Colour – to be selected from standard colour.
- .3 Preformed metal wall cladding including all trims, flashing:
 - Pre-finished wall panels
Vic West profile “Diamond Rib” 30”, 26 gauge
Colour - to be selected from standard colour.
- .4 Sheet material: (rubberized asphalt) as Grace "Ice and Water Shield" or Bakor "Blueskin SA", self-adhering, 40 mil thickness.
- .5 Separator sheet: unsaturated felt to CSA A123.2M, Class C, #15; resin sized sheets.

2.2 COMPONENTS

- .1 Flashing (ridge, valley, side, fascia, etc.) pressure plates, closures, caps, etc., all roofing manufacturer's standard, finish to match metal roofing.
- .2 Hardware: as recommended by metal roofing manufacturer, corrosion resistant nails, screws, washers.
- .3 Horizontal Z girt as required for wall cladding applications.
- .4 Sealant, Gaskets, Tape, Closures: roofing manufacturer's standard for specific application and use.
- .5 Snow Guards: injection molded clear polycarbonate with UV stabilizer, adhesive mounted - Surebond SB-190 Everseal adhesive; 3" w x 2 1/2" h x 4" l, Snojax - "SnoBlox Deuce" or approved equivalent.
- .6 Eavestrough and Downspout: provide 4" x 4" eavestrough to match roof slope complete with clips at 24" o.c. and DS-4 4" x 4" open face downspouts complete with support support straps. Finish to match metal roofing.
- .7 Gables Vents: Pre-finished aluminum gable vent, 22" octagonal shape with horizontal louvres, formed brick mould and concealed insect screen. Manufactured by Kaycan, Model # 5081 22" Octagon with 81 sq. in venting area. Colour to be selected.

2.3 FABRICATION

- .1 Fabricate metal roofing of pre-finished sheet steel to approved drawings and details, flat pan with turned-up edges, standing lock seam type.
- .2 Form roofing pans to maximum lengths, to profile specified, with interlocking lap joints staggered down slope.
- .3 Fabricate flashing, returns, side trim, corners, etc., all brake formed, all same material as roofing.
- .4 All bends hard, sharp machines made to provide a true, straight line.
- .5 Form cleats, and other sheet metal work hidden in final assembly, of galvanized sheet metal.

2.4 MANUFACTURER

- .1 Pre-formed metal roofing to profile detailed, by Vic West or approved equal in accordance with B7.
- .2 Snow Guards manufactured by SnoJax – 1405 Brandton Road, Mechanicsburg, PA 17055
Ph: 1-800-766-5291

3.0 EXECUTION

3.1 INSPECTION/PREPARATION

- .1 Carefully inspect steel channel roofing support members, verify smooth and securely fastened, no projecting nails, screws, or sharp edges, plywood securely fastened to steel deck under.
- .2 Apply rubberized asphalt membrane to steel channel roof support, at ridges and hips laid to weather, lapping 8" along edges, 12" at ends. Seal edges with plastic caulking.

- .3 Coordinate installations of rubberized asphalt and torch on membrane with other flashing and membranes where applicable to ensure a water-tight installation.

3.2 INSTALLATION

- .1 Install metal roofing system over roof deck / sheathing to approved details using only skilled and experienced roofers, in accordance with metal roofing manufacturer's instructions.
- .2 Install pre-formed metal standing seam roofing to approved details, anchoring securely in place, all joints water and weather-tight.
- .3 Apply rubberized asphalt membrane, immediately under metal roofing over roof deck / sheathing.
- .4 Install metal wall cladding over horizontal Z girts spaced at 24" o.c. over wall studs and structural steel members.
- .5 Install edge trim, flashing, transition pieces, drip moulding.
- .6 Build-in and coordinate flashing, trim, end and corner segments, all as required for a proper water and weather-tight roof. All seams parallel.
- .7 Build-in provision for thermal movement of metal such that it will not budge, twist, buckle or oil-can under temperature changes or wind or snow loads.
- .8 Attach snow guards to roof using adhesive installation method following manufacturer's instruction. Snow guards spacing layout as per manufacturer's recommendations.
- .9 Install metal fascia and vented soffit including all necessary trim pieces. Soffit to be secured with screws, installed in interlocking joint and center rib and screwed into existing wood fascia. All mouldings and trims to be fastened using screws at maximum 400 mm (16") o.c.

3.3 PROTECTION

- .1 All persons working on or around metal roofing surfaces must wear soft rubber soled footwear.
- .2 Do not allow any persons, other than roof metal manufacturer's qualified applicators, to work on or over metal roofing.
- .3 Any metal roofing materials, surfaces or finishes damaged, disfigured, marred or scratched will be rejected and shall be replaced at no cost to the Owner.

- END OF SECTION -

1.0 GENERAL

1.1 RELATED SECTIONS

- | | | |
|----|---------------------------------|---------------|
| .1 | Framing and Sheathing | Section 06112 |
| .2 | Preformed Metal Cladding / Roof | Section 07412 |
| .3 | Painting | Section 09900 |

2.0 PRODUCTS

2.1 SHEET METAL MATERIALS

- .1 Items not exposed to view: Galvanized steel sheet, commercial quality to ASTM A526-71 (1975) with G90 designation zinc coating to ASTM A525-78 (or Dofasco Galvalume). Thickness 0.80 mm (22 ga.) unless noted otherwise.
- .2 Items exposed to view: Pre-finished galvanized steel sheet with factory applied coating to ASTM A446-72, in HMP / 8000 series, and in accordance with CSSBI Bulletin #5, latest edition. Thickness 24 ga. unless noted otherwise. Colour to be selected from complete Dofasco range.

2.2 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CGSB 37-GP-5M.
- .3 Sealants: in accordance with Section 07900, colour selected by Contract Administrator.
- .4 Cleats: of same material, and temper as sheet metal, minimum 50 mm (2@) wide. Thickness same as sheet metal being secured.
- .5 Fasteners: of same material as sheet metal, to CSA B111-1974, flat head roofing nails of length and thickness suitable for metal flashing application.
- .6 Washers: of same material as sheet metal, 1 mm thick with rubber backings.
- .7 Solder: to ASTM B32-76, 50% tin and 50% lead.
- .8 Flux: rosin, cut muriatic acid, or commercial preparation suitable for materials to be soldered.

2.3 FABRICATION

- .1 Fabricate metal flashing and other sheet metal work to applicable CRCA "FL" series specifications and as detailed.
- .2 Form pieces in 2400 mm (8 ft.) 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.

- .6 For all fascia and trim applications:
 - .1 Form fascia and trims to profiles and reveals as detailed.
 - .2 24 gauge pre-finished galvanized steel to be shop adhered over 1/2" exterior plywood.
 - .3 Provide 1/2" wide matching pre-finished steel vertical joint / reveal at 10 ft. o.c. as required to facilitate fastening of profile to supporting structure.

- 2.4 **METAL FLASHING**
 - .1 Form flashing to profiles indicated of minimum 0.80 mm thick galvanized steel unless otherwise indicated.

- 2.5 **METAL EAVESTROUGH AND DOWNSPOUT**
 - .1 Refer to Section 07412 Preformed Metal Cladding / Roof

- 2.6 **PRE-FORMED SOFFIT**
 - .1 Refer to Section 07412 Preformed Metal Cladding / Roof

- 3.0 INSTALLATION**

- 3.1 **INSTALLATION**
 - .1 Install sheet metal work as detailed.
 - .2 Use concealed fastenings except where approved by Contract Administrator before installation.
 - .3 Counter flash bituminous flashing at intersections of roof with vertical surfaces and curbs. Flash joints using standing seams forming tight fit over hook strips, except where otherwise shown.
 - .4 Lock end joints and caulk with sealant.

- End of Section -

1.0 GENERAL

1.1 DESCRIPTION

- .1 Comply with the General Conditions, Supplementary Conditions, the requirements of Division 1, and any supplements and/or addenda.
- .2 All sealing required to seal the building and to withstand the action of the elements and to complete the building air/vapour barrier and not specified elsewhere shall be considered as part of this work.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- .1 Concrete Section 03300
- .2 Preformed Metal Siding / Roof Section 07412
- .3 Steel Doors, Frames and Screens Section 08100
- .4 Gypsum Board Section 09250

1.3 QUALITY ASSURANCE

- .1 Execute this work by a firm who has adequate plant, equipment and skilled workers to perform work expeditiously and is known to have been responsible for satisfactory installations similar to that specified for the past immediate five (5) years.

1.4 SUBMITTAL

- .1 Conform to Section 01330.
- .2 Submit for approval samples of materials specified herein for approval, and obtain approval before materials are delivered to the site. Make samples of sealant cured physical samples of manufacturer's complete standard colour line, for each type of sealant specified, indicating general locations of specific colours. Submit samples of the following, 12" (300mm) long minimum:
 - .1 Sealants (each type)
 - .2 Joint backing
 - .3 Joint fillers (each type), insulation
 - .4 Bond breaker

1.5 DELIVERIES, STORAGE AND HANDLING

- .1 Deliver materials to the site in original unopened containers, clearly indicating manufacturer's name, brand name, and other identifying information.
- .2 Store materials in a dry location, off-the-ground and in such a manner as to prevent freezing, damage and the intrusion of foreign matter.
- .3 Replace materials that have become damaged or otherwise unfit for use during delivery, or storage, at the expense of this trade.

1.6 SITE CONDITIONS

.1 Protection

- .1 Provide non-staining means of protection for the completed horizontal sealing installations and where required to protect the work from damage by other trades.
- .2 Ensure that ambient and surface temperatures are above 5C and joint conditions are suitable for the materials to be applied.
- .3 Protect adjacent finishes from damage, where heavy abrasive cleaning is required such as sandblasting, grinding or wire brushing.
- .4 Protect work of other trades from damage. Make good all damage caused by this work at no additional cost.

1.7 WARRANTY

- .1 Submit a warranty in accordance with the General Conditions, but for a period of two (2) years.
- .2 Defects shall include, but not be limited to staining, discolouration, adhesive or cohesive failure, dirt adhesion, and failure of cured state.
- .3 Submit a twenty (20) year warranty on materials (Dow Corning only).

2.0 PRODUCTS

2.1 MATERIALS

- .1 All sealants shall be classed as non-bleeding and capable of supporting their own weight, except the self-levelling type sealant for horizontal surfaces.
- .2 All sealants, cleaning solvents, fillers and primers shall be compatible with each other and the surfaces to which they are applied.
- .3 Colours to be selected later by the Contract Administrator from standard colours.
- .4 Joint Backing: non-staining, compressible, round, resilient, non-absorbing, closed cell foam recommended by sealant manufacturer (polyethylene or chemically compatible rod stock of butyl or neoprene). Diameter shall be 25% greater than joint width before installation, compatible with sealant, primer and substrate. Ensure that joint backing is not cut nor punctured during installation.
- .5 Bond Breaker: recommended by sealant manufacturer.
- .6 Primers: recommended by sealant manufacturer and to suit the various job conditions.
- .7 Cleaning Material: Xylol, Methyl-ethyl-ketone, Toluol or recommended by the sealant manufacturer.
- .8 Sealants (For vertical and horizontal non-traffic bearing joints (not immersed in water, not for floors)).
 - .1 General construction use, interior and exterior moving and static joints: 1 part silicone to CGSB 19-GP.9Ma; Dow 790, GE Silprof or Tremco Dymeric.

- .2 At ceramic tile, FRP panels, vertical wet areas, interior only, moving and static joints: 1 part silicone, mould and mildew resistant, to CGSB 19-GP-22; Dow 786, GE1700.
- .3 Interior use only, static (non-moving) joints, dry area (can be painted): 1 part acrylic latex to CGSB 19-GF-17; PRC 4000, Tremco Acrylic Latex, LaPage Gapseal.
- .9 Sealants (For all floors and extreme wet areas interior and exterior (not roads or vehicle surfaces)):
 - .1 2 part polysulphide to CGSB 19-GP-3; ORC Rubber Calk 250.

3.0 EXECUTION

3.1 PREPARATION

- .1 Substrate
 - .1 Ensure that surfaces to be sealed are sound, dry, free from dirt, water, frost, loose scale, corrosion, asphalt, paints or other contaminants that may adversely affect the performance of the sealant.
 - .2 Do not apply sealant until mortar or concrete has cured for 28 days.
- .2 Cleaning
 - .1 Perform cleaning recommended by the sealant manufacturer to achieve acceptable joint surfaces.
- .3 Joint Backing
 - .1 Fill joint with joint backing to provide proper depth to width ratio. Make joint depth half of joint width up to 3/4" (20mm). At expansion joints, provide bond breaker to joint backing material, on surfaces facing sealant only. Joints not less than 3/8" (9mm) deep.
- .4 Masking
 - .1 Mask areas adjacent to the joints as required prior to priming. Prevent contamination of adjacent surfaces. Remove masking promptly after initial set of sealant.
- .5 Primer
 - .1 Prime joints unless priming is not recommended in writing by the manufacturer of the sealant. Apply primer with an approved brush. Perform priming immediately before application of sealant.
- .6 Sealant Life
 - .1 Do not exceed shelf life, pot life and installation time of the materials as stated by the manufacturers.
 - .2 Be familiar with the working life of the sealant to be used.
- .7 Mixing
 - .1 Use workers trained and competent in the mixing of this material.
 - .2 Do not mix multi-component materials until required for use. Mix sealants thoroughly with a mechanical mixer capable of mixing at 80-100 rpm without mixing air into the materials.

.8 Stains and Adhesion

- .1 Before any sealing is commenced, test the materials for indications of staining and adhesion.

3.2 APPLICATION

- .1 Apply materials in compliance with the recommendations of the manufacturers.
- .2 Install sealant with manually operated or air pressure operated guns. Use gun nozzles of the proper sizes to suit the joints and the sealant. Use sufficient pressure to fill all voids and joints. Hold the nozzle to the bottom of the joints to ensure complete filling of the joints. Ensure that sealants bond to both sides of joint and backing material.
- .3 Ensure that the correct sealant depth is maintained. Joint widths up to 1/4" (6mm) depth equal width. Make bead full, free from air pockets and embedded impurities and having smooth surface, free from ridges, wrinkles, sags, air pockets and embedded impurities. After joints have been completely filled, tool them neatly to a slight concave surface.
- .4 Promptly clean adjacent surfaces that have been soiled and leave work in a neat, clean condition. Remove excess materials and droppings using recommended cleaners and solvents. Make good damaged work to original condition at no additional cost.
- .5 Sealant in exposed interior locations shall be installed only after finishes to adjacent surfaces have been applied.
- .6 Cut out damaged sealant, re-prepare and prime joints and install new material as specified.
- .7 Interior sealant shall include both sides of walls and frames where finished installation will be visible.
- .8 Apply acrylic latex paintable sealant before painting so it can be painted over. Apply all other sealant after adjacent surfaces painted.

3.3 LOCATIONS

- .1 Seal at the junction of the following interior and exterior materials, unless sealant is specified to be included in the work of other trades:
- .1 Concrete to metal
 - .2 Concrete to concrete
 - .3 Concrete to masonry
 - .4 Masonry to masonry
 - .5 Masonry to metal
 - .6 Metal to metal
 - .7 Other locations as required
- .2 In general, seal the following interior joints:
- .1 Interior steel frames - both sides.
 - .2 At tile work, control joints and joints around fixtures, pipes, door frames and other items meeting or passing through the tile unless a recess feature is indicated or sealed.
- .3 In general, seal the following exterior joints:
- .1 Exterior steel frames - exterior and interior side.

- .2 Thresholds, three beads minimum.
- .3 Pipes and metal protrusions through the building envelope.
- .4 Louvres and metal cladding.
- .4 The fact that the drawings do not show all locations to be sealed, does not limit responsibility to seal all locations required to create and secure a continuous enclosure.

3.4 FIELD QUALITY CONTROL

.1 Site Meeting

- .1 Arrange with the sealant manufacturers for a visit at the job site by one of their technical representatives before beginning the installation, to discuss with the Consultant the procedures to be adopted, site conditions and inspection of the surfaces and joints to be sealed, make recommendations and list procedures.
- .2 Discuss the following items:
 - a) Weather conditions under which work will be done.
 - b) Anticipated frequency and extent of joint movement.
 - c) Joint design (shape).
 - d) Suitability of Durometer hardness and other properties of material to be used in relation to Items 1 to 3 above.
 - e) Number of beads to be used in the sealing operation.
 - f) Analysis of job conditions, temperature, wind, moisture, orientation, heating provisions and protection.
 - g) Correct size of joint for proposed sealant.
 - h) Inspection of surfaces and joints.
 - i) Installation recommendations.
 - j) Mixing procedures for multi-component sealants, and sealant pot life.
 - k) Compatibility of materials where different types of sealants meet; where materials will be applied over sealant and where substrate differs.
 - l) Colour of sealants.
 - m) Primers or surface treatments used on surfaces to be sealed.
 - n) Sample installation.

- END OF SECTION -