

## **PART 1 - GENERAL**

### **1.1 SCOPE OF WORK**

- .1 Install a self-adhesive membrane (air and/or vapour barrier) to ensure are and water tightness on exterior wall assemblies, where required in the plans (miscellaneous construction details) and at all junctions of various building envelope materials.
- .2 Install this membrane where required in the plans, incorporated into exterior wall assemblies.

### **1.2 RELATED WORK**

- |    |                               |   |
|----|-------------------------------|---|
| .1 | Concrete and steel            | See structural engineering plans and specifications |
| .2 | Sheet metal flashing and trim | Section 07 62 00                                    |
| .3 | Joint sealants                | Section 07 92 10                                    |
| .4 | Detention doors and frames    | Sections 08 11 00                                   |
| .5 | Structure                     | See engineer's plans and specifications             |

### **1.3 REFERENCE STANDARDS**

- .1 Apply the self-adhesive membrane in compliance with the manufacturer's recommendations.

### **1.4 PERFORMANCE CONDITIONS**

- .1 Do not apply the components in rainy weather and/or to damp surfaces.
- .2 Ambient air temperature must be at least -4°C for a period of at least 72 hours before, during and after application.
- .3 Based on manufacturer's recommendations

### **1.5 TECHNICAL SHEETS AND SAMPLES**

- .1 Submit a technical sheet in electronic .pdf format for all products used.
- .2 Submit a sample of all membranes used at the construction site.

### **1.6 QUALITY CONTROL**

- .1 The membrane must be applied by a company with a good reputation, approved by the membrane manufacturer.

### **1.7 COMPATIBILITY OF MATERIALS**

- .1 All materials used must be compatible with each other and with the materials with which they will come into contact.

### **1.8 PRECONDITIONS**

- .1 Check that supporting surfaces and work already performed are in suitable condition to accommodate the work described in this section. Notify the designated Departmental Representative of any anomaly or inconsistency. Do not start work until corrected measures have been taken. Ensure that surfaces to be overlaid are clean, smooth and dry.
- .2 Do not install the membrane without first ensuring that it will be covered after at least 6 weeks' exposure to the open air.
- .3 The start of all or any part of the work shall constitute acceptance of the base work and surfaces.

### **1.9 WARRANTY**

- .1 The contractor shall submit a written document stipulating that the membrane work is guaranteed against any loss of seal and adherence for:
  - .1 A period of one (1) year, according to general conditions.
  - .2 Submit an extended warranty for a period of five (5) years, according to general conditions.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- .1 Blueskin-type elastomeric sealant or approved equivalent.
- .2 Self-adhesive air barrier wall membrane such as Bakor Blueskin SA and poly-bituminous primer for Bakor Blueskin or approved equivalent.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- .1 Before starting work, inspect surfaces to be overlaid with the membrane, to ensure that they are solid, plumb, smooth, dry, clean, uniform and not in a condition likely to adversely affect the performance, durability, adherence or quality of the work.
- .2 Do not install the membrane until all components that must pierce it have been fully installed.

### **3.2 GENERAL**

- .1 Only where required in plans (not to all surfaces)
- .2 First apply primer and seal all open joints in compliance with Bakor's requirements for the type of membrane.
- .3 Apply the membrane in compliance with the manufacturer's recommendations.
- .4 Apply membrane selvages and provide 50 mm joint overlaps.

### **3.3 WEATHER PROTECTION**

- .1 Membranes must be applied as quickly as possible following demolition and repair of wall supports, to ensure immediate protection from rain.

## **END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 SCOPE OF WORK**

- .1 Provide and install materials and products, tools, scaffolding and labour for execution and completion of metal siding work as indicated in the drawings and as described in this section:
  - .1 All accessories, hardware, fasteners, nails and anchors, including sealing of constructions required for full execution of metal siding work;
  - .2 The work covers all types of metal siding for the project, particularly sheet metal panels.

### **1.2 RELATED WORK**

- |    |                                   |                  |
|----|-----------------------------------|------------------|
| .1 | Concrete (see structure)          | Division 3       |
| .2 | Structural Steel (see structure)  | Division 5       |
| .3 | Self-Adhesive Sheet Waterproofing | Section 07 13 52 |
| .4 | Sheet Metal Flashing and Trim     | Section 07 62 00 |
| .5 | Joint Sealants                    | Section 07 92 10 |
| .6 | Detention doors and frames        | Section 08 11 00 |
| .7 | Electrical (see electrical)       |                  |

### **1.3 REFERENCE STANDARDS**

- .1 ASTM A653/A653M-09a, Specification for Steel Sheet Zinc-Coated (Galvanized) by Hot-Dip Process, Structural (Physical) Quality.
- .2 ASTM A924/A924M-09a, Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process Metric.
- .3 CAN/CGSB-93.2-M91, Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use.
- .4 CAN/CGSB-93.3-M91, Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use.
- .5 CAN/CGSB-93.4-92, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
- .6 CAN/CGSB 93.5-92, Installation of Metal Residential Siding, Soffits and Fascia.
- .7 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
- .8 CAN/CSA-S136-07, North American Specification for the Design of Cold-Formed Steel Structural Members.
- .9 CAN/CSA-S136.1-07, Commentary on North American Specification for the Design of Cold-Formed Steel Structural Members.

### **1.4 SUBMITTALS**

- .1 Submit shop drawings, product data and samples in accordance with the administrative conditions. Submit samples of all materials used in the work for the Architect to review.
- .2 Shop drawings to show location, profiles, thicknesses, colours and characteristics of furring, type and spacing of anchors and other relevant details for each type of sheathing, trim and accessories. Submit shop drawings signed and sealed by a structural engineer and member of the OIQ.

### **1.5 PRE-INSPECTION**

- .1 Ensure complete cooperation among various trades.
- .2 Check on progress of work by various trades and cooperate fully with them.
- .3 Before start of work, notify the manufacturer's technical advisor of the products to be used and follow their written recommendations.

### **1.6 DESIGN CALCULATIONS**

- .1 Design metal panel siding in accordance with CAN/CSA-S136-F07 and CSA-S136.1-07.
- .2 Design metal panels to allow for thermal movement of component materials caused by variation in ambient temperature range of 80°C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
- .3 Include joints to accommodate movement between panels and between panels and building structure caused by structural movements (snow load and wind), without permanent distortion, damage to infills, racking of joints, breakage of seals, or water penetration.
- .4 Design panels to accommodate specified erection tolerances of support structure.

- .5 Maintain following installation tolerances:
  - .1 Maximum variation from plane of members: 6 mm for lengths of 10 m or less and 10 mm for lengths of 10 m or more;
  - .2 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm;
  - .3 Design members to withstand dead load and wind loads as calculated in accordance with the Québec Construction Code (CCQ) and applicable local regulations, to maximum allowable deflection of 1/180 of span.
- .6 Provide for positive drainage of condensation occurring within roof construction and water entering at joints to exterior in accordance with NRC "Rain Screen Principles," described in CBD 40.

## **1.7 DELIVERY, HANDLING AND STORAGE**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store products in original packaging with manufacturer's seals and labels intact.
- .3 Store products subject to damage from weather in weatherproof enclosures.

## **1.8 WARRANTY**

- .1 Provide certificates stating that the work (materials and labour) is jointly warranted by the Contractor against any water penetration for a period of five years from the date of Substantial Completion issued by the Architect.
- .2 Should the work fail to meet the required performance during the warranty period, it shall be corrected with diligence by the Contractor upon receipt of written notice from the Departmental Representative. The Contractor shall pay all repair costs, to the complete satisfaction of the Architect, and shall extended the warranty for five (5) additional years jointly with the supplier.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- .1 Provide siding of one type from a single manufacturer.
- .2 Compliance: comply with manufacturer's requirements, recommendations and written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and data sheets.

### **2.2 MATERIALS**

- .1 Corrugated wall siding panels:
  - .1 Metal siding preformed and prefinished galvanized steel, 22 gauge. Corrugated to be installed horizontally.
  - .2 As corrugated product 7/8" by Vicwest or approved equivalent. Colour: Gris Pierre 56071 by Vicwest.
    - .1 Finish coating: WeatherX: Silicone polyester (SMP) paint system.  
Color: Gray stone 56071 from Vicwest.

### **2.3 ACCESSORIES**

- .1 Exposed trim: internal corners, external corners, mouldings, cap flashing and drip cap, starter and transition strip, undersill and other trim, same material and colour as adjacent sheathing.
- .2 Shaped metal furring: galvanized steel (ASTM A653/A653M-11) with zinc-coated, 22 mm thick, gauge 20.
- .3 Isolation coating: alkali resistant bituminous paint.
- .4 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
- .5 Screws: same colour as sheathing, with neoprene washers, self-tapping.
- .6 Nails: to CSA B111 and ANSI B18.6.4, aluminum alloy or stainless steels for aluminum siding.

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## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- .1 Do not cover underlying work until it has been inspected and approved.

### **3.2 INSTALLATION**

- .1 Install cladding in accordance with CGSB 93.5 and manufacturer's written instructions.
- .2 Fix furring or metal bars to the building structure upright, spacing them 915 mm c/c unless otherwise indicated. Anchor them to withstand a pull-out force of 120 kg per linear m.
- .3 Install continuous starter strips, inside and outside corners, edgings, drip cap, sill and door opening flashings as indicated.
- .4 Install exterior corners, fillers and closure strips with carefully formed and profiled work.
- .5 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .6 Attach components in manner not restricting thermal movement.
- .7 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

### **3.3 PROTECTION AND CLEANING**

- .1 Protect all finished surfaces from damage or contaminants of any kind.
- .2 Submit warranties upon acceptance of work prior to final payment.

## **END OF SECTION**



## **PART 1 - GENERAL**

### **1.1 SCOPE OF WORK**

- .1 Provide and install all fascias and metal sections required around perimeter of wall openings, doors, frames, conduits, metal siding, etc.
- .2 Provide and install all pre-enamelled galvanized steel flashings required in the plans and not specifically shown on top of, beneath and butting against materials, integrated into the metal siding, or around exterior doors and frames.
- .3 Provide and install metal flashing and trim indicated or required.

### **1.2 RELATED WORK**

- .1 Self-Adhesive Sheet Waterproofing Section 07 13 52
- .2 Joint Sealants Section 07 92 10
- .3 Detention Doors and Frames Sections 08 11 00

### **1.3 REFERENCE STANDARDS**

- .1 Standards:
  - .1 ASTM A653/A653M-09a, Specification for Steel Sheet Zinc-Coated (Galvanized) by Hot-Dip Process, Structural (Physical) Quality.
  - .2 ASTM A924/A924M-09a, Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process Metric.
  - .3 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.

### **1.4 SUBMITTALS**

- .1 Submit shop drawings, product data and samples required.
- .2 Submit samples of all materials to be used for Departmental Representative review.

### **1.5 WARRANTY**

- .1 Provide a written warranty in the Departmental Representative's name guaranteeing the work in this section against any defective material or installation for a period of one (1) year according to the general conditions.
- .2 Provide a written prolonged warranty in the Departmental Representative's name guaranteeing the work in this section against any defective material or installation for a period of five (5) years according to the general conditions.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

- .1 Sheet steel: galvanized steel plate, smooth surface, commercial grade to ASTM A653/A653M-09a, with Z275 designation zinc coating, 0.61 mm thick (24 gauge), unless otherwise indicated in the drawings.
- .2 Sheet steel: galvanized steel plate, smooth surface, to ASTM A924/A924M-09a, with AZ275 coating, 0.61 mm thick (24 gauge), unless otherwise indicated in the drawings.
- .3 Pre-enamelled sheet steel: For the metal fascia of the exposed flashing and various other complementary enamelled steel flashing for the metal siding, 24 gauge, colours Departmental Representative's choice.
  - .1 Colour: Gris Pierre 56071, WEATHER-X series by VICWEST or approved equivalent.

## **2.2 ACCESSORIES**

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Screw fasteners: with neoprene washers and prepainted hex head, same colour as prepainted metal, steel with non-corrosive finish, to ANSI B18.6.4; use where concealed fasteners cannot be installed; exposed fasteners to be approved by the Departmental Representative and have the following physical properties:
  - .1 Reference: Climaseal, Kwik-Cote, Stalgard or approved equivalent.
- .3 Self-drilling and self-tapping screws: non-corrosive finish, in sizes and gauges appropriate for the work, to ANSI B18.6.4, with the following physical properties:
  - .1 Reference: Climaseal, Kwik-Cote, Stalgard or approved equivalent.
- .4 Cleats: of same material and temper as sheet metal, minimum 50 mm wide, thickness same as sheet metal being secured.
- .5 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .6 Sealing compound: SBS modified bituminous sealing compound, containing fibre, mineral spirits, solvent and aluminum colour, superior UV resistance, colour Departmental Representative's choice where exposed, with the following physical properties:
  - .1 Reference: Sopramastic ALU by Soprema or approved equivalent.
- .7 Touch-up paint: as recommended by sheet metal manufacturer.

## **2.3 FABRICATION**

- .1 Fabricate metal flashings and other sheet metal components in accordance with indications on drawings.
- .2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints. Flash joints using S-lock.
- .3 Hem exposed edges on underside 12 mm. Mitre corners and lock to give single corner seam, and seal joint with sealant. Seal with sealing compound.
- .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. Apply isolation coating to surfaces of metals that contact different types of metal.
- .6 Co-ordinate work with sections 07 46 13 – Preformed Metal Siding.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- .1 Position sheet metal pieces in accordance with drawing details. Co-ordinate the work in this section with sections 07 13 52 – Self-Adhesive Waterproofing.
- .2 Apply sealing compound to flashings, cap flashings and all joints in accordance with Section 07 92 10 – Joint Sealants. Apply caulking to any other area required.
- .3 Lock end joints and caulk with sealant.

## **END OF SECTION**



## **PART 1 - GENERAL**

### **1.1 GENERAL**

- .1 This section covers the description and application of all sealing joints.

### **1.2 SCOPE OF WORK**

- .1 The scope of the work includes jointing and sealing of all joints indicated on the drawings and specifications in addition to those required around mechanical and electrical components and various openings (doors, etc.), control and expansion joints and various other joints integrated into the building envelope, as well as joints for junctions between different materials of existing cladding to be maintained.

### **1.3 RELATED WORK**

- .1 Refer to the various sections in these specifications for all related work described separately.

### **1.4 SAMPLES AND PRODUCT DATA**

- .1 Submit samples of each type of material and colours required to the Departmental Representative for approval, as well as manufacturers' product data.

### **1.5 APPLICATION REQUIREMENTS**

- .1 Apply sealant and substrate material at a minimum temperature of 5 degrees Celsius.
- .2 Ensure that the product is used within the prescribed time after date of fabrication or mixing on site.

### **1.6 REFERENCE STANDARDS**

- .1 Standards:
  - .1 ASTM C 794-06, Standard Test Method of Adhesion-In-Peel for Elastomeric Joint Sealants.
  - .2 ASTM C1248-08, Standard Test Method for Staining of Porous Substrate by Joint Sealants.
  - .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).
- .2 Sealant Weatherproofing & Restoration Institute (SWRI):
  - .1 Independent U.S. professional organization representing over 230 contractors, manufacturers and consultants working in commercial construction.
  - .2 SWRI Institute Validation Program, independent program that performs material and product testing to determine whether they meet the manufacturers' stated performance in compliance with industry quality standards.
  - .3 Refer to [www.swrionline.org](http://www.swrionline.org).

### **1.7 SAFETY AND ENVIRONMENTAL REQUIREMENTS**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS/MSDS) 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.

### **1.8 WARRANTY**

- .1 Provide a manufacturer's written warranty issued and signed in the Departmental Representative's name for a period of one (1) year according to the general conditions and indicating:
  - .1 Sealing work is free from seal breakage, loss of consistency or bond, cracking, crumbling, contraction and running and will not cause discolouration of adjacent surfaces.
  - .2 Materials used are compatible (sealant/sealant and sealant/underlying or contacting materials) in terms of physical bond and chemistry (risk of stains, contamination, oxidation and any other type of temporary or permanent deterioration possible), over the short, medium and long terms.

- .2 Provide a manufacturer's written prolonged warranty issued and signed in the Departmental Representative's name for a period of five (5) years according to the general conditions and indicating:
  - .1 Sealing work is free from seal breakage, loss of consistency or bond, cracking, crumbling, contraction and running and will not cause discolouration of adjacent surfaces.
  - .2 Materials used are compatible (sealant/sealant and sealant/underlying or contacting materials) in terms of physical bond and chemistry (risk of stains, contamination, oxidation and any other type of temporary or permanent deterioration possible), over the short, medium and long terms.

## **PART 2 - PRODUCTS**

### **2.1 SEALANTS AND RELATED PRODUCTS – GENERAL**

- .1 When low toxicity products are not possible, confine usage to areas which offgas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize offgas time.
- .2 Where sealants are qualified with primers (related sealing material), use only these primers.

### **2.2 SEALANTS – PRODUCTS AND LOCATION**

- .1 Type A, for vertical and horizontal exterior joints, visible in the building façade, between frames for openings and adjacent exterior surfaces of the building, around the perimeter of every opening or hole to the exterior of the sheathing :
  - .1 Terpolymer polyurethane epoxidized, three part, non-sag:
    - .1 Movement capability  $\pm 50\%$ .
    - .2 To CAN/CGSB-19.24-M90 and ASTM C920-10.
    - .3 Colour: Architect's choice.
    - .4 Reference: CWS/CCS, 790 or 795 by Dow Corning, DYmeric 240 by Tremco or approved equivalent.
- .2 Use a product suitable for materials to be installed and in accordance with recommendations of material manufacturers.
- .3 Colour of sealants Departmental Representative's choice, match colours of adjacent materials.

### **2.3 RELATED SEALING PRODUCTS**

- .1 Pre-formed, compressible and non-compressible fill material, 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.
- .2 Bond breaker tape:
  - .1 Polyethylene bond breaker tape which will not bond to sealant.
- .3 Vent pipes: 3 mm interior diameter, polyvinyl chloride (PVC), for prefabricated panel joints.

### **2.4 JOINT CLEANER**

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- 2 Sealant 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 PREPARATION OF SURFACES**

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of back-up materials and sealants.
- .2 Clean bonding joint surfaces of harmful 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 Check that 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 APPLICATION OF BACK-UP MATERIALS**

- .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 PREPARATION OF SEALANT**

- .1 Mix materials in strict accordance with sealant manufacturer's instructions.

### **3.6 INSTALLATION**

- .1 Application of 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 Comply with sealing tape dimensions and depth to width relationships as specified by manufacturers.
- .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 Cleaning:
  - .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**

