

## BUILDING INSULATION

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### 1. GENERAL

#### 1.1 Delivery, Storage and Handling

- .1 Deliver materials to Site in their original wrappings with labels intact and store in areas directed by Contractor Administrator.
- .2 Store insulation on raised platforms and protect with waterproof covers. Prevent exposure of insulation to UV exposure.
- .3 Store materials inside buildings for 24 hours prior to installation.

### 2. PRODUCTS

#### 2.1 Materials

- .1 Perimeter Insulation: CAN/ULC-S701 Type 4, expanded, extruded polystyrene board insulation, minimum compressive strength of 210 kPa (30 psi) at 10% deformation or yield; square edges, unfaced, Styrofoam SM by Dow Chemical Canada Inc.
- .2 Roll or Batt Wall Insulation: Preformed glass fibre batt insulation, CAN/ULC-S702, 17.5 kg/cu.m. (1.1 pcf) density.
- .3 Adhesive: Compatible to and as recommended by manufacturer of insulating materials.
- .4 Cement Mortar Mix: 1 part Portland cement, 6 part masonry sand, 1 part hydrated lime, potable water to produce a workable mix.
- .5 Mechanical Fasteners
  - .1 Insulation Clips: Impale type, perforated 50 mm x 50 mm (2" x 2") cold rolled steel adhesive back, spindle of length to suit insulation plus 25 mm (1") with speed washers.
  - .2 Nails: Galvanized steel, length 25 mm (1") longer than insulation thickness, CSA B111 Table 12.
  - .3 Staples: Galvanized wire, 12 mm (1/2") minimum.
- .6 Lightweight Cement Board: Panels of Portland cement slurry with a fully embedded alkali resistant glass fiber mesh facing, Unipan, Uniflex or PermaBase from Unifix inc., or Durock by CGC.

### 3. EXECUTION

#### 3.1 Preparation

- .1 Ensure that surfaces to receive adhesive or insulation are dry, firm, straight, and free from

## **BUILDING INSULATION**

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loose material, projections, ice, frost, slick, grease, oil or other matter detrimental to bond of the adhesive or uniform bedding of the insulation.

- .2 Maintain surface and ambient temperatures during application and curing of adhesive at a temperature recommended by the manufacturer of the type of adhesive used.

### **3.2 Installation - General**

- .1 Install insulation to maintain continuity of thermal protection to building elements and spaces as indicated on Drawings.
- .2 Fit insulation tight to electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other projections or openings.
- .3 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation panels free from ripped backs or chipped or broken edges.
- .4 Install materials in accordance with manufacturer's instructions.
- .5 Do not cover insulation until it has been reviewed by Contractor Administrator.

### **3.3 Installation - Insulation**

- .1 Apply adhesives to substrate at rate recommended by manufacturer.
- .2 Fix insulation clip type fasteners on substrate, 2 per 600 mm x 1200 mm (24" x 48") board minimum. Impale insulation board on insulation clips, butting all joints firmly together and secure with washers, cut off spindles 3 mm (1/8") beyond washer.
- .3 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm (6") wide 6 mil polyethylene strip over joint using compatible adhesive prior to application of insulation.
- .4 Provide flexible insulation of equivalent thickness and thermal insulation to fit areas where application of rigid insulation is not possible to provide continuous coverage.
- .5 Perimeter Insulation: Install insulation boards on exterior face of perimeter foundation walls. Apply with adhesive or cement mortar mix.
- .6 Installation - Batt or Roll Insulation
  - .1 Fit batt between framing and press firmly into place. Butt tightly at joints, free of gaps.
  - .2 Insulate behind pipes, ducts, electric conduits and outlets or junction boxes. Cut insulation to fit around and behind obstructions and non-standard spaces.

**END OF SECTION**

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## AVB AND WEATHER MEMBRANE

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### 1. GENERAL

#### 1.1 Work Included

- .1 Sheet Air Retarder.
- .2 Self-adhesive air / vapour barrier.
- .3 Sheet vapour barrier.

#### 1.2 Related Work

- .1 Excavation and Backfilling: Section: 02223
- .2 Cast-in-Place Concrete: Section: 03300

#### 1.3 References

- .1 CAN/CGSB-51.34 Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

### 2. PRODUCTS

#### 2.1 Air Retarder / Weather Membrane

- .1 Exterior building paper: to CAN/CGSB-51.32M, spun bonded olefin, fine high polyethylene fibres, 6.1 mils thick, Dupont Canada manufacture "Tyvek".
- .2 Sheathing Tape: 3", 3-M 8086 or equal

#### 2.2 Air / Vapour Barrier Sections

- .1 Membrane vapour retarder / air seal barrier: self-adhering, cold applied composite sheet membrane, comprised of 0.9 mm of rubberized asphalt bonded to 0.1 mm film of high density cross laminated polyethylene, total minimum thickness 1.0 mm, silicone treated release paper backed, water based surface conditioner, W.R. Grace & Co. of Canada Ltd. manufacturer, "Perm-A-Barrier System 4000".
- .2 Sealant: To membrane manufacturer's recommendations.
- .3 Primer: To membrane manufacturer's recommendations.

#### 2.3 Sheet Vapour Barrier

- .1 Sheet membrane vapour Barrier: to CAN/CGSB-51.34 Vapour Barrier, Polyethylene Sheet for Use in Building Construction, Type 1, permeability 0.25 perms, 6 mil thick. Sealing tape recommended by manufacturer.

## **AVB AND WEATHER MEMBRANE**

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- .2 Joint sealing tape: air resistant, pressure sensitive, 2" wide, manufacturer standard.
- .3 Joint sealant: Compatible with vapour barrier.

### **3. EXECUTION**

#### **3.1 Air Retarder**

- .1 All joints receive sheathing tape

#### **3.2 Air / Vapour Barrier - Walls**

- .1 Prime surfaces to membrane manufacturers recommendations.
- .2 Apply membrane to manufacturer's recommendations.
- .3 Apply membrane horizontally starting at bottom of wall and weather lap 50 mm.
- .4 Lap ends 50 mm.
- .5 Roll membrane, including seam, with hand roller to ensure full contact.
- .6 Cut membrane neatly around projections to form a tight seal. Seal area around any projections with application of sealant.
- .7 Seal membrane where it meets the substrate, at the end of the days work.

#### **3.3 Sheet Vapour Barrier**

- .1 Install sheet vapour barrier in strict accordance with manufacturer's instructions.
- .2 Seal all joints.
- .3 Ensure continuity of membrane over installation area and at connection to adjacent materials.

**END OF SECTION**

## METAL CLADDING

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### 1. GENERAL

#### 1.1 Performance Requirements

- .1 Expansion and Contraction: Design work to accommodate expansion and contraction within design temperature range.
- .2 Design Wind and Temperatures: In accordance with requirements of the governing building code.
- .3 Deflection: Maximum L/240 of clear span at design loads.
- .4 Design work to maintain profile specified.

#### 1.2 Quality Assurance

- .1 Installer: Trained and approved by the manufacturer and having a minimum five years experience in the installation of the work described in this Section and can show evidence of satisfactory completion of projects of similar size, scope and type. If requested, provide letter of certification from manufacturer stating that installer is certified applicator of its products, and is familiar with proper procedures and installation requirements required by the manufacturer.
- .2 Maintenance Seminars: Provide, to the City, training seminars and recommendations on Product maintenance procedures.
- .3 Pre-Installation Meeting: Two weeks prior to commencing work of this Section, arrange for manufacturer's technical representative to visit the site and review preparatory and installation procedures to be followed, conditions under which the work will be done, and inspect the surfaces to receive the work of this Section. Advise the Contract Administrator of the date and time of the meeting.
- .4 Manufacturer's Site Inspection: Have the Manufacturer's Technical Representative inspect the Work at suitable intervals during application and at conclusion of the work of this Section, to ensure the Work is correctly installed. When requested, submit manufacturer's inspection reports and verification that the work of this Section is correctly installed.
- .5 Source Limitations: Obtain each type of product from a single manufacturer.

#### 1.3 Submittals

- .1 Samples: Duplicate 50 mm x 75 mm (2" x 3") samples of each type of cladding material, in colour and profile specified.
- .2 Shop Drawings: Clearly indicate type of metal cladding being supplied, surface finish, type and thickness of insulation, thicknesses of metal cladding components, size, spacing and location of structural supports, connections, types and locations of fastenings. Indicate

## METAL CLADDING

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provisions for structural and thermal movement between metal cladding and adjacent materials.

## 2. PRODUCTS

### 2.1 Materials

- .1 Roll Formed Metal Cladding Panel: Sheet steel coil coated to ASTM A755, galvanized by the hot dip process to ASTM A653M, Z275. Pre-finish sheet to meet or exceed requirements of Baycoat Metallic Series. Colour later selected by Contract Administrator not necessarily from manufacturer's standard offering; apply colours on top side only.
- .2 Walls: Vicwest profile CL 6025R.
- .3 Roof: Vicwest TSR standing seam roof panels.
  - .1 High performance fluoropolymer finish: AA-C12C40R1x, chemical finish: cleaned with inhibited chemicals; chemical finish: conversion coatings; organic coating: manufacturer's standard three coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70% polyvinylidene fluoride resin by weight. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
  - .2 Flashings, Trims and Closures: Steel core thickness and finish to match siding. Inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material and colour as cladding, with fastener holes pre-punched.
  - .3 Fasteners: Non-corrosive concealed fasteners of stainless steel, aluminum or cadmium plated steel, as recommended by the manufacturer. Where exposed fasteners are required, provide fasteners in colours matching cladding work.
  - .4 Sealant: CAN/CGSB-19.24, Dymeric by Tremco Ltd. or other approved equivalents.
  - .5 Backer rod: Non-absorbent, non-gassing, closed cell polyolefin foam, over sized 25%.

### 2.2 Fabrication

- .1 Co-ordinate and verify at job site dimensions affecting work of this Section. Ensure suitability of adjacent building components in relation to work of this Section.
- .2 Accurately fit joints and intersecting members to true planes, adequately and securely fastened and made completely water and weathertight. Component fastening devices shall be of adequate strength and concealed, except as specified otherwise.
- .3 Fabricate work to profiles and sizes indicated complete with rabbets, interlocks, flashings,

## METAL CLADDING

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cappings, trim, filler sections as required to interface with work of other Sections. Make provisions for thermal and structural movements.

- .4 Fabricate all devices required for erection and adequate anchorage and attachment required to be built into or attached to substrate and framing members for proper support.
- .5 Accurately cut and form flashing true and straight without waves or buckles. Make adequate provision for thermal movement and make joints watertight.
- .6 Reinforce work to meet specified requirements and prevent undue deflection. Provide concealed corrosion resistant fastening and continuous formed pre-finished cleats.

### **3. EXECUTION**

#### **3.1 Installation - General**

- .1 Install work in accordance with manufacturer's written instructions, plumb with intersecting parts joined together to provide tight, accurately fitted joints with adjoining surfaces in true planes. Attach components in manner not restricting thermal movement.

#### **3.2 Installation**

- .1 Install insulation on liner sheets with adhesive. Butt each board against adjacent boards, with joints staggered. Fit neatly with tight joints around obstructions, openings and corners. Fill voids behind flashings and trim with neatly cut blocks of insulation.
- .2 Fasten cladding to studs with concealed fasteners where possible and at spacings to suit loading requirements. Ensure complete nesting of exterior siding sheets on studs and sealed side lap joints.
- .3 Align units end-to-end to provide accurate fit with corresponding sections parallel and straight. Keep exposed fasteners to a minimum. Maintain minimum end overlap of 50 mm (2") and locate directly over supports.

#### **3.3 Installation - Flashing, Closure, Trim and Accessories**

- .1 Cut and flash openings for louvres, doors, windows and the like. Provide all necessary closures, flashings, gutter, downspouts, drips and trims, sealed to stop direct weather penetration.
- .2 Install soffit and fascia cladding as indicated.

#### **3.4 Sealing**

- .1 Seal junctions with adjoining work with sealant. Apply and cure sealant in accordance with manufacturer's instructions.
- .2 Use backer rod to maintain correct sealant width/depth ratio as recommended by the sealant

**METAL CLADDING**

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manufacturer.

- .3 Apply sealant in continuous beads, using gun with proper size nozzle and sufficient pressure to fill voids and joints solid.
- .4 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
- .5 Tool exposed surfaces to give slightly concave shape.

**END OF SECTION**



## **SHEET METAL ROOFING**

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### **1. WORK INCLUDED**

- .1 Provide all labour, materials, methods, equipment, accessories to complete curved sheet metal roofing to east entry.
- .2 Prefinished sheet metal roof system.
- .3 Caulking, sealing sheet metal, flashings, trims, etc.

### **1.2 Related Documents**

- .1 Drawings and General Conditions.

### **1.3 Related Sections**

- .1 Division 5: Structural steel framing, steel roof deck, cutting openings, closures in steel roof deck.
- .2 Section 06100: Rough Carpentry
- .3 Section 07210: Building Insulation.
- .4 Section 07250: AVB & Weather Membranes

### **1.4 Samples**

- .1 Submit samples requested by Contract Administrator.

### **1.5 Regulatory Requirements**

- .1 Do roofing work in accordance with applicable standard in Canadian Roofing Contractors Association (CRCA) Roofing Specifications Manual and to manufacturer's instructions except as specified otherwise.
- .2 Comply with applicable ULC, local authority having jurisdiction requirements.

### **1.6 Shop Drawings**

- .1 Submit shop drawings in accordance with Section 01300.
- .2 Indicate arrangements of sheets and joints, types and locations of fasteners and special shapes, etc.
- .3 Submit largest scale details of sheet metal work, joints, membrane moisture barrier, insulation, clips, mitred panels, other components, etc.

### **1.7 Storage and Handling**

- .1 Deliver roofing system materials when required.

## **SHEET METAL ROOFING**

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- .2 Protect materials, keep under cover in transit, at job site. Handle at site to prevent damage. Remove from delivery vehicles, place in stacking areas. Ensure materials not dropped or thrown.
- .3 Stack materials minimum 12" off ground on supports, away from deleterious moisture, weather conditions. Protect with waterproof covers, allow free ventilation. Store membranes on end, on clean dry surface. Keep warm.
- .4 Assume responsibility for material damage. Discard, replace damaged materials.
- .5 Remove only quantities required for same day use.
- .6 Remove insulation wrapping only on roof, immediately prior to laying.

### **1.8 Environment**

- .1 Stop work when temperature, weather such to cause adverse installation, improper adhesion roofing systems, components. Fully protect work as required.
- .2 Use only dry materials and apply only during weather that will not introduce moisture into roofing system.

### **1.9 Warranty**

- .1 Extend warranty required by General Conditions to period two (2) years from date of Substantial Performance.
- .2 Warranty shall be inclusive of all components specified from top of steel roof deck.
- .3 Provide written guarantee sheet metal roofing, fascia, wall facing work guaranteed against leakage, in form acceptable to Contract Administrator.
- .4 Provide written guarantee finish paint process to metal roofing will withstand abnormal fading, discoloration of paint surface for period five (5) years from date of Substantial Performance.

## **2. PRODUCTS**

### **2.1 Materials**

- .1 Pre-finished Metal Roofing System: Vic West Steel Inc. manufacture TSR standing-seam system.
- .2 Finish:
  - .1 Epoxy primer: light, non-descriptive colour, 0.2 mils thick.

## **SHEET METAL ROOFING**

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- .2 Baked enamel: Stelcolour 10,000 series, fluoropolymeric coating, minimum 1 mill thick, including primer, two coats proven colour selected by Contract Administrator.
- .3 Accessories: As per Manufacturer's system requirements
- .4 Trim, flashings, closures, copings, cap flashings: match material, thickness, finish, colour of adjacent panel units.

### **2.2 Fabrication**

- .1 Fabricate sheet metal to dimensions, details, profiles indicated, in accordance with manufacturer's standards, reviewed shop, erection drawings.
- .2 Form individual pieces in continuous lengths, without horizontal joints, edges mitre cut to suit roof shape. Make allowances for expansion at joints.
- .3 Layout roof areas, determine batten locations to ensure proper relationship, juncture with battens on adjacent, adjoining roof and wall surface planes to Contract Administrator approval.
- .4 Form panel sections equally across each roof plane area, sheet joint batten rib spacing 24" o.c., square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Design, fabricate concealed anchorage system for expansion and contraction.
- .6 Fabricate flashings, closures, trims, batten caps, etc. required for application.
- .7 Protect dissimilar metals against oxidization by backpainting with isolation coating where indicated.

### **3. EXECUTION**

#### **3.1 Examination**

- .1 Examine surfaces, areas to receive sheet metal roofing. Immediately report defects.
- .2 Ensure surfaces firm, smooth, dry, free of snow, ice or frost.
- .3 Ensure all protrusions, mechanical, electrical conduit, piping, equipment, etc. installed, connected.
- .4 Proceed when defects, unsatisfactory conditions corrected, other Sections work complete.

#### **3.2 Wood Deck Preparation**

- .1 Clean off oil, grease, scale, other foreign matter.

## **SHEET METAL ROOFING**

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- .2 Ensure no raised corner, edges damaging to membrane exist.
- .3 Maintain in dry condition, clean deck channels.

### **3.3 Self-Adhesive Moisture Barrier**

- .1 Apply primer in accordance with manufacturer's printed instructions.
- .2 Apply "Perm-A-Barrier" in a lapped fashion from the lower perimeter, continuing over roof surfaces perpendicular to roof slope, in accordance with manufacturer's directions, without wrinkles, stretches, ensure adequate bond, in continuous horizontal strips (without end laps).
- .3 Lap self-adhesive moisture barrier minimum 2" edge joints.
- .4 Cut membrane neatly around openings, other protrusions, install under wood blocking, etc., to form tight seal. Seal around protrusions, perimeter edges, terminations, etc.

### **3.4 Sheet Metal Roofing, Wall Facing Installation**

- .1 Apply primer in accordance with manufacturer's printed instructions.
- .2 Apply "Perm-A-Barrier" in a lapped fashion from the lower perimeter, continuing over roof surfaces perpendicular to roof slope, in accordance with manufacturer's directions, without wrinkles, stretches, ensure adequate bond, in continuous horizontal strips (without end laps).
- .3 Lap self-adhesive moisture barrier minimum 2" edge joints.
- .4 Cut membrane neatly around openings, other protrusions, install under wood blocking, etc., to form tight seal. Seal around protrusions, perimeter edges, terminations, etc.

### **3.5 Metal Flashings**

- .1 Complete roofing system.
- .2 Form metal counter flashing with hemmed edges, locked joints.
- .3 Counterflash membrane flashings at vertical surfaces, where indicated, required.
- .4 Form joints using S-lock, tight fit over hook strips, as indicated.
- .5 Lock end joints, caulk with sealant.
- .6 Secure flashings to wood backing with galvanized, helical nails, neoprene washers, to masonry with galvanized screws, neoprene washers.

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**SHEET METAL ROOFING**

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**3.6 Adjustment, Damaged Material**

- .1 Clean down all panel roof, wall areas, leave free of grime, dirt, etc. at completion of installation.
- .2 Repair, replace dented, badly scratched, damaged paneling, trim, etc. Remove, replace, repair to Contract Administrator approval.

**3.7 Cleaning**

- .1 Clean up rubbish, debris, packaging resulting from work promptly as work proceeds, at completion, at other times directed by Contract Administrator. Remove from job site.

**END OF SECTION**

## METAL FLASHING AND TRIM

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### 1. GENERAL

#### 1.1 Section Includes

- .1 Provide all labor, materials, methods, equipment, accessories to complete sheet metal flashings, metal covers and trim work etc.
- .2 Fabrication.
- .3 Pre-finished metal roof parapet flashings as per drawings.
- .4 Other pre-finished sheet metal work indicated, required.
- .5 Required accessories, installation clips, angles, bolts, fasteners.
- .6 Caulking, backup material, sealing, bedding.

#### 1.2 Related Sections

- .1 Section 06100: Rough Carpentry
- .2 All Sections: Applicable installation as required.

#### 1.3 Shop Drawings

- .1 Submit shop drawings.
- .2 Indicate materials, profiles in large scale, construction of various parts, methods of joining, thickness, types of materials, finishes, anchorage details, joints, fastenings, sealants, adjacent materials, etc.

#### 1.4 Samples

- .1 Submit samples requested by Contract Administrator.

#### 1.5 Material Delivery, Storage, Handling

- .1 Store materials to manufacturer's instructions, above grade on dunnage, protected from weather, construction activities.
- .2 Prevent damage to materials during handling, storage, application.

### 2. PRODUCTS

#### 2.1 Materials

- .1 Galvanized sheet metal: to ASTM A526-80, commercial quality, minimum 26 gauge nominal core thickness, thickness indicated, required, Z275 zinc coating to ASTM A525-M.

## METAL FLASHING AND TRIM

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- .2 Pre-finished galvanized sheet metal: baked enamel, Stelcolour 5000 series, minimum one mil thick including primer, color to match existing approved by Contract Administrator.

### 2.2 Accessories

- .1 Isolation coating: Alkali resistant bituminous paint.
- .2 Plastic cement: Plastic cut-back asphalt, Domtar manufacture "Fibregum".
- .3 Sealing compound: Rubber asphalt type.
- .4 Cleats: Same material, temper, thickness as sheet metal, minimum 2" wide. Thickness same as sheet metal being secured.
- .5 Fasteners: Same material as sheet metal, to CSA B111, ring thread, flat head roofing nails, length and thickness suitable for metal flashing application.
- .6 Fasteners: Purpose-made standard screw type approved by Contract Administrator, oval head, sealing washers where indicated, required, sized to meet application requirements, exposed heads color matched to attached materials.
- .7 Caulking: Manufacturer's standard, color matched to adjacent materials. Provide approved rainwater gutter interior sealing compound.

### 2.3 Fabrication

- .1 Comply with dimensions, profile limitations, gauges, fabrication details shown, detailed on shop, erection drawings.
- .2 Fabricate components at factory, ready for field assembly in maximum lengths.
- .3 Fabricate fascia covers, eave drip edges, rake flashings, etc. to profiles indicated, to dimensions indicated, required.
- .4 Form metal flashings, cap, roof flashings, stucco, window sill, stone veneer wall base flashings, over lintels, miscellaneous flashings, etc. to profiles indicated, from minimum 26 gauge galvanized sheet steel, as indicated, to Contract Administrator approval.
- .5 Form pieces in maximum 6'-0" lengths. Make allowance for expansion at joints.
- .6 Hem exposed edges on underside 1/2" where abutting other surfaces, supporting soffit panels as required. Mitre, seal corners with sealant.
- .7 Form wall scuppers, downspout sections, etc. from minimum 22 gauge thick galvanized sheet steel to profiles, sizes indicated.
- .8 Form eave gutters as required.
- .9 Square closed downspouts as indicated, c/w corners, elbows, end deflectors, brackets, etc.

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**METAL FLASHING AND TRIM**

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.10 Allow for expansion, contraction, seal joints, connection watertight.

**3. EXECUTION**

**3.1 Installation**

- .1 Install sheet metal work in accordance with CRCA specifications, manufacturer instructions, in conjunction with other Sections.
- .2 Use concealed fastenings except where approved before installation.
- .3 Form metal counter flashing with hemmed edges, locked joints. Extend to bottom of cant, in moderate contact with roof surface.
- .4 Secure by concealed nailing at lock joints along top edge of blocking, adjoining surfaces.
- .5 Secure flashings to wood backing, other surfaces with galvanized nails, neoprene washers prior to finish material application, co-operate with other Sections.
- .6 Lock end joints, caulk with sealant.
- .7 Secure metal flashing to other materials, form weathertight junction.
- .8 Caulk cap, other flashings to other materials, surfaces with sealant.

**3.2 Cleaning**

- .1 Clean up rubbish, debris resulting from work promptly as work proceeds. Remove from jobsite.
- .2 Clean down work, remove dirt, grime, other marks, at completion of installation. Repair or replace dented, scratched panels, trim, covers, etc. to Contract Administrator approval.

**END OF SECTION**



## JOINT SEALING

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### 1. GENERAL

#### 1.1 Related Sections

- .1 Text to complete other various Sections containing sealant or caulking specifications.

#### 1.2 References

- .1 American Society for Testing and Materials International, (ASTM)
  - .1 ASTM C919-02 Standard Practice for Use of Sealants in Acoustical Applications.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .2 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
  - .3 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
- .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 01300 - Submittals.
- .2 Manufacturer's product to describe.
  - .1 Caulking compound.
  - .2 Primers.
  - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- .3 Submit samples in accordance with Section 01300 - Submittals.
- .4 Submit duplicate samples of each type of material and colour.
- .5 Cured samples of exposed sealants for each color where required to match adjacent material.
- .6 Submit manufacturer's instructions in accordance with Section 01300 - Submittals.
  - .1 Instructions to include installation instructions for each product used.

## JOINT SEALING

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### 1.4 Delivery, Storage and Handling

- .1 Deliver, handle, store and protect materials in accordance with General Conditions.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

### 1.5 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.

### 1.6 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 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 During installation of caulking and sealants, ventilate area of work as directed by Contract Administrator by use of approved portable supply and exhaust fans.

### 1.7 Quality Assurance

- .1 Perform the work by experienced and skilled mechanics thoroughly trained and competent in the use of caulking and sealing equipment and the specified materials with at least five years experience.

## JOINT SEALING

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- .2 Arrange with the caulking and sealant manufacturers for a visit at the job site by one of their technical representatives before beginning the caulking and sealing installation to discuss with the Contractor and the Contract Administrator the procedures to be adopted, to analyse site conditions and inspect the surfaces and joints to be sealed, in order that type of sealant recommendations may be made for typical joint configuration.
- .3 Discuss the following items and provide a written report indicating:
  - .1 Sealants and caulking materials selected for use from those specified.
  - .2 Surface preparation requirements.
  - .3 Priming and application procedures.
  - .4 Verification that sealants and caulking are suitable for purposes intended and joint design.
  - .5 Sealants and caulking are compatible with other materials and products with which they come in contact including but not limited to sealants provided under other Sections, insulation adhesives, EPS, FRP, bitumens, block, concrete, metals and metal finishes.
  - .6 Verification that sealant and caulking are suitable for temperature and humidity conditions at time of application and will not stain adjacent surfaces.
  - .7 Recommended sealant for each type of joint configuration.
  - .8 Joint design.
  - .9 Anticipated frequency and extent of joint movement.
  - .10 Number of beads to be used in the sealing operation.
  - .11 Suitability of durometer hardness and other properties of material to be used.
  - .12 Weather conditions under which work will be done.

## 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 When low toxicity caulks 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 off gas time.

## JOINT SEALING

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- .3 Where sealants are qualified with primers use only these primers.

### 2.2 Sealant Material Designations

- .1 Exterior general use (non-traffic bearing): Silicone One Part. to CAN/CGSB-19.13.

- .1 Acceptable Products:

- .1 Dow 790/795
    - .2 GE SilPruf / SilPruf LM / SilPruf NB
    - .3 Sonneborn Sonolastic 150/ Sonolastic Omniseal

- .2 Millwork to wall joints and wet areas: Silicone One Part.

- .1 Acceptable Products:

- .1 Dow 786
    - .2 GE 1700
    - .3 Urethanes One Part.

- .3 Self-Leveling

- .1 Acceptable Products

- .1 Sonneborne SL1
    - .2 Tremco THC 900
    - .3 PRC 6000/6006
    - .4 Vulkem 116/45
    - .5 Bostik Chem-Calk 900
    - .6 Sika Sikaflex 1a

- .4 Acrylic Latex One Part

- .1 Acceptable Material:

- .1 Sonneborn Sonolac
    - .2 Tremco 834
    - .3 PRC 2000
    - .4 Sternson Acry Flex
    - .5 GE Acryseal

- .5 Sealants for vertical and horizontal non-traffic bearing joints to CAN/CGSB-19.24.

## JOINT SEALING

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- .1 Type 1: high, low temperature range, wet conditions, movement range to 25% polysulphide, non-staining, non-fading. Caulking to withstand environmental conditions of locale.
- .2 Type 2: normal temperature range, dry conditions, movement range to 10%. Paintable, latex base caulking, interior conditions only.
- .6 Acoustical Sealant. To ASTM C919.
  - .1 Acceptable material:
    - .1 Tremco acoustic sealant
    - .2 Pl 2000 bulldog
  - .7 Preformed Compressible and Non-Compressible back-up materials.
    - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
      - .1 Extruded closed cell foam backer rod.
      - .2 Size: oversize 30 to 50 %.
    - .2 Neoprene or Butyl Rubber.
      - .1 Round solid rod, Shore A hardness 70.
    - .3 High Density Foam.
      - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m<sup>3</sup> density, or neoprene foam backer, size as recommended by manufacturer.
    - .4 Bond Breaker Tape.
      - .1 Polyethylene bond breaker tape which will not bond to sealant.
    - .5 Colours: Colours shall be selected from manufacturer's standard colour range. Colours to match material / background colour upon which they occur. Final colour selection by Contract Administrator.

### 2.3 Sealant Selection

- .1 Joints in concrete slabs (exterior): CAN/CGSB-19.24.
- .2 Joints between metal frame and cladding; CAN/CGSB-19.24.
- .3 Joints between metal frame and gypsum board: CAN/CGSB-19.13 Type MCG, Class 2-40.
- .4 Joints in gypsum board walls: CAN/CGSB-19.13 Type MCG, Class 2-40.

## JOINT SEALING

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- .5 Joints in washrooms, etc., suitable for washroom environment.
- .6 Joints in polyethylene and where acoustical sealant is specified: ASTM C919.

### **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.

## **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 Back-up 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.

## JOINT SEALING

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### 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 Curing.
    - .1 Cure sealants in accordance with sealant manufacturer's instructions.
    - .2 Do not cover up sealants until proper curing has taken place.
  - .10 Clean-up.
    - .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**