

**1 General**

**1.1 RELATED SECTIONS**

- .1 Section 06 10 10 – Rough Carpentry

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM).
  - .1 ASTM C553-02, Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.
  - .2 ASTM C665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
  - .3 ASTM C1320-99, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
- .2 Canadian Standards Association (CSA International).
  - .1 CSA B111-1974(R1998), Wire Nails, Spikes and Staples.
- .3 Environmental Choice Program (EPC).
  - .1 CCD-016-97, Thermal Insulation.
- .4 Underwriters Laboratories of Canada (ULC).
  - .1 CAN/ULC-S604-1991, Type A Chimneys.
  - .2 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

**1.3 SUBMITTALS**

- .1 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

**1.4 QUALITY ASSURANCE**

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

**2 Products**

**2.1 INSULATION**

- .1 Batt and blanket mineral fibre: to CSA A101, Type 1 thickness as indicated.
  - .1 Acceptable material: Base Bid - for Maximum Thermal and Acoustical (full compliance with STC ratings) requirements. Utilize acrylic binder and optimize recycled content.
    - .1 Owens Corning Pink Fibreglass insulation with GreenGuard
    - .2 Johns Manville's Formaldehyde free fibreglass insulation

**2.2 ACCESSORIES**

- .1 Insulation clips:
  - .1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

.2 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111.

.3 Staples: 12 mm minimum leg.

### **3 Execution**

#### **3.1 INSULATION INSTALLATION**

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

.2 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

.3 Do not compress insulation to fit into spaces.

.4 Do not enclose insulation until it has been inspected and approved by Contract Administrator.

#### **3.2 ACOUSTICAL TREATMENT**

.1 Install acoustical insulation between studs in sound rated partitions.

.2 Coordinate installation of acoustic batt insulation with other work.

.3 Ensure sound attenuation blankets fill space between studs and run continuously from floor to ceiling of structure, over doorframes and openings and around corners.

.4 Ensure insulation is packed around cut openings in wallboard, behind outlet boxes, around plumbing, heating or structural items passing through the system and at abutting walls.

.5 Apply 16 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to acoustically seal gypsum board/structure junction where partitions abut fixed building components. Apply sealant to perimeter of cutouts around electrical boxes, ducts, etc.

.6 Apply sealant in accordance with manufacturer's directions.

**END OF SECTION**

**1 General**

**1.1 REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.
- .2 Canadian Standards Association (CSA)
  - .1 CAN/CSA-ISO [9001] [9002] [9003], Requirements for Quality Assurance, Parts 1, 2 and 3.
  - .2 CAN/CSA-ISO 14001-96, Environmental Management Systems - Specifications with Guidance for Use.

**1.2 SUBMITTALS**

- .1 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures.

**1.3 PRODUCT DATA**

- .1 Submit product data sheets for sheet vapour retarders. Include:
  - .1 Product characteristics.
  - .2 Performance criteria.
  - .3 Limitations.

**1.4 MOCK-UPS**

- .1 Construct mock-up of sheet vapour barrier installation including one lap joint, one inside corner and at one electrical box. Mock-up may be part of finished work.
- .2 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with vapour barrier work.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Place materials defined as hazardous or toxic waste in designated containers.
- .2 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .3 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
- .4 Fold up metal banding, flatten and place in designated area for recycling.
- .5 Use the least toxic sealants and adhesives necessary to comply with requirements of this section.
- .6 Close and seal, tightly, all partly used sealant and adhesive containers and store protected in well ventilated, fire-safe area at moderate temperature.
- .7 Place used hazardous sealant tubes and adhesive containers in areas designated for hazardous materials.
- .8 Collect, package and store polyethylene cut offs and waste material for recycling in accordance with Waste Management Plan.

**2 Products**

**2.1 SHEET VAPOUR BARRIER**

- .1 Polyethylene film: to CAN/CGSB-51.34, 0.15 mm thick EcoLogo certified containing minimum 50% recycled content.

## **2.2 ACCESSORIES**

- .1 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.
- .2 Sealant: EcoLogo certified, not to contain total of volatile organic compounds in excess of 5 % by weight, asbestos-free sealant, compatible with vapour retarder materials, recommended by vapour retarder manufacturer. To Section 07 92 10 - Joint Sealing.
- .3 Staples: minimum 6 mm leg.
- .4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

## **3 Execution**

### **3.1 INSTALLATION**

- .1 Ensure services are installed and inspected prior to installation of retarder.
- .2 Install sheet vapour retarder on warm side of exterior wall and ceiling assemblies prior to installation of gypsum board to form continuous retarder.
- .3 Use sheets of largest practical size to minimize joints.
- .4 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

### **3.2 EXTERIOR SURFACE OPENINGS**

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

### **3.3 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.

### **3.4 LAP JOINT SEALS**

- .1 Seal lap joints of sheet vapour barrier as follows:
  - .1 Attach first sheet to substrate.
  - .2 Apply continuous bead of sealant over solid backing at joint.
  - .3 Lap adjoining sheet minimum 150 mm and press into sealant bead.
  - .4 Install staples through lapped sheets at sealant bead into wood substrate.
  - .5 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

### **3.5 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.

**END OF SECTION**

**1 General**

**1.1 RELATED SECTIONS**

- .1 Section 07 92 10 - Joint Sealing
- .2 Section 06 10 10 - Rough Carpentry
- .3 Section 07 26 00 - Sheet Vapour Retarders
- .4 Section 07 21 16 - Batt and Blanket Insulation
- .6 Section 07 92 10 - Joint Sealing
- .8 Section 08 11 14, 08 11 16 - Door frames

**1.2 REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.
  - .1 CAN/CGSB-19.18M-M87, Sealing Compound, One Component, Silicone Base Solvent Curing.
  - .2 CAN/CGSB-19.24M-M90, Multi-Component, Chemical Curing Sealing Compound.
  - .3 CGSB 19-GP-14M-76, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.
- .2 NBCC 2005; Part 5 - Environmental Separation
- .3 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

**1.3 SUBMITTALS**

- .1 Manufacturer's Installation Instructions: Indicate preparation, installation requirements and techniques, product storage and handling criteria.

**1.4 QUALITY ASSURANCE**

- .1 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.
- .2 **The Contractor, membrane applicator, testing agency, Contract Administrator, cladding applicator, mason, gypsum board applicator, etc. shall attend a pre-start up meeting prior to applying the air barrier so as to go over the details needing special attention and to discuss the testing procedures, sample being provided for testing, scheduling etc. The Contractor shall arrange for this meeting to be on site.**

- .3 Maintain one copy of documents on site.

**1.5 QUALIFICATIONS**

- .1 Applicator: Company specializing in performing work of this section with minimum 5 years experience with installation of air/vapour barrier systems. Completed installation must be approved by the material manufacturer. .

**1.6 MOCK-UP**

- .1 Locate where directed
- .2 Mock-up may remain as part of the Work.

- .3 Allow 24 h for inspection of mock-up by Contract Administrator before proceeding with air/vapour barrier Work.

## **1.7 PRE- INSTALLATION MEETINGS**

- .1 Convene one week prior to commencing Work of this section.

## **1.8 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Avoid spillage. Immediately notify Contract Administrator if spillage occurs and start clean up procedures.
- .3 Clean spills and leave area, as it was prior to spill.

## **1.9 WASTE MANAGEMENT AND DISPOSAL**

- .1 Place materials defined as hazardous or toxic waste in designated containers.
- .2 Ensure emptied containers are sealed and stored safely for disposal away from children.

## **1.10 PROJECT ENVIRONMENTAL REQUIREMENTS**

- .1 Do not install solvent curing sealants or vapour release adhesive materials in enclosed spaces without ventilation.
- .2 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

## **1.11 SEQUENCING**

- .1 Sequence work to permit installation of materials in conjunction with related materials and seals.
- .2 Coordinate work of this section with all sections referencing this section.

## **1.12 WARRANTY**

- .1 For sealant and sheet materials the 12 months warranty period prescribed in subsection GC 32.1 of General Conditions "C" is extended to 24 months.
- .2 Warranty: Include coverage of installed sealant and sheet materials, which fail to achieve airtight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

## **2 Products**

### **2.1 SHEET MATERIALS**

- .1 Spunbonded Olefin Air Infiltration Barrier.
  - .1 Acceptable product:
    - .1 'TYVEK' by Dupont Canada.
    - .2 'TYPAR' by Reemay Inc.
  - .2 Self Adhesive Air Barrier:
    - .1 Acceptable Product:
      - .1 Bakor SA,
      - .2 Grace Permabarrier
      - .3 Soprema Sopraseal Stick 1100

.4 Iko Aquabarrier AVB

- .2 Expansion strip - Bakor blueskin expansion strip or equivalent product from manufacturers listed above. Use where Contract Administrator deems necessary due to potential movement.
- .3 Trowel on mastic - Bakor Air-Bloc 21 or equivalent product from manufacturer listed above. Use in areas where it is impractical to use self adhesive membrane overtop of membrane and around penetrations through membrane ( ie. Masonry ties )
- .4 Air Barrier continuity membrane( if separate membrane required by site conditions) Bituthene 4000 or 3000 or equivalent products from above listed manufacturers.
- .5 Manufacturer: Use products from the same manufacturer for all products in this section.
- .6 **Applicator must be trained and approved in writing by membrane manufacturer prior to start of work.**
- .7 Construct 10 sq.m. panel of typical air-vapour barrier installation for approval. Locate on site as part of final installation. Do not proceed until sample has been approved by Contract Administrator.

**2.2 SEALANTS**

- .1 Sealants in accordance with Section 07 92 10 - Joint Sealing.
- .2 Primer: Recommended by sealant manufacturer, Appropriate to application.
- .3 Substrate Cleaner: Non-corrosive type recommended by sealant manufacturer and compatible with adjacent materials.

**2.3 ADHESIVES**

- .1 Compatible with sheet seal and substrate, with less than 3% mineral solvents or manufactured with a solvent base as recommended by manufacturer.

**2.4 ACCESSORIES**

- .1 Tape: self-adhering type, compatible with sheet material.
  - .1 Acceptable manufacturer: 3M No. Y-8086: CMHC #10418. Venture: CMHC #11362.
- .2 Fasteners: Galvanized nails with large heads or with plastic washers or widest possible staples.

**3 Execution**

**3.1 EXAMINATION**

- .1 Verify that surfaces and conditions are ready to accept the Work of this section.
- .2 Ensure all surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.
- .3 Report any unsatisfactory conditions to the Contract Administrator in writing.
- .4 Do not start work until deficiencies have been corrected. Commencement of Work implies acceptance of conditions.

### 3.2 PREPARATION

- .1 Remove loose or foreign matter, which might impair adhesion of materials.
- .2 Ensure all substrates are clean of oil or excess dust; all masonry joints struck flush, and open joints filled; and all concrete surfaces free of large voids, spalled areas or sharp protrusions.
- .3 Ensure all substrates are free of surface moisture prior to application of [self-adhesive] membrane and primer.
- .4 Ensure metal closures are free of sharp edges and burrs.
- .5 Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

### 3.3 INSTALLATION

- .1 Install materials in accordance with manufacturer's instructions.
- .2 Secure sheet seal materials with adhesive tape or fasteners. Caulk with sealant to ensure complete seal. Position lap seal over firm bearing. Laps to be a minimum of 100 mm. Position lap seal over firm bearing.
- .3 For horizontal installation, begin at corner of building. For vertical installation, begin at the top. In either installation leave a fold of extra material at the top to accommodate any expansion in the structure.
- .4 At door, window and other openings, wrap the material around the wall assembly and affix to the inside. This is achieved by cutting the material in an "X" fashion from corner to corner of the opening.
- .5 Use sheets as large as manageable to limit the number of joints.
- .6 All penetrations are to be caulked and or sealed.
- .7 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- .8 Request Contract Administrator's inspection when work is completed and do not cover membrane until Contract Administrator provides written acceptance report. Ensure continuity of air-barrier over entire surface of exterior wall, at doors, windows and other penetrations. Lap and seal wall air-barrier to roof vapour-retardant to ensure continuity of air-barrier over entire building envelope. Refer to drawings. Ensure that wall and roof membranes are fully compatible. Adhere wall air barrier to roof vapour retardant after roof barrier is in place. Do not allow hot asphalt to come in contact with wall air-barrier.
- .9 Examine surfaces to receive air barrier to ensure they are smooth, dry and free from conditions that could adversely affect execution, permeance or quality of work.
- .10 Using methods approved by membrane manufacturer, test moisture content of cement parging to ensure that it has fully-cured to a moisture level acceptable to membrane manufacturer. Send test results to manufacturer for review and acceptance of moisture level. Once manufacturer has accepted moisture level, send acceptance report to the Contract Administrator for final approval.
- .11 Apply air barrier after other work which penetrates membrane has been completed.
- .12 **Provide mechanical fastening at area surrounding all windows for the Self Adhesive Air Barrier**

**3.4 PROTECTION OF WORK**

- .1 Do not permit adjacent work to damage work of this section.
- .2 Ensure finished Work is protected from climatic conditions.

**END OF SECTION**

**1 General**

**1.1 RELATED SECTIONS**

- .1 Section 07 92 10 - Joint Sealing.

**1.2 REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI B18.6.4-[1981], Screws, Tapping and Metallic Drive, Inch Series, Thread Forming and Cutting.
- .2 American Society for Testing and Materials (ASTM)
  - .1 ASTM b 209/B209M – 2004 Standard Specification for Aluminium and Aluminium - Alloy Sheet and Plate.
  - .2 ASTM D 2369-98, Standard Test Method for Volatile Content of Coatings.
  - .3 ASTM D 2832-92(R1994), Standard Guide for Determining Volatile and Non-volatile Content of Paint and Related Coatings.
  - .4 ASTM D 5116-90, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
  - .2 CAN/CGSB-93.2-M91, Prefinished Aluminium Siding, Soffits and Fascia, for Residential Use.
  - .3 CAN/CGSB-93.3-M91, Prefinished Galvanized and Aluminium-Zinc Alloy Steel Sheet for Residential Use.
  - .4 CAN/CGSB-93.4-92, Galvanized Steel and Aluminium-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
  - .5 CGSB 93.5-92, Installation of Metal Residential Siding, Soffits and Fascia.
- .4 Canadian Standards Association (CSA)
  - .1 CAN/CSA-A247-96, Insulating Fibreboard.
  - .2 CSA B111-1974, Wire Nails, Spikes and Staples.
- .5 Environmental Choice Program (ECP)
  - .1 ECP-45-92, Sealants and Caulking Compounds.
  - .2 ECP-69-94, Polyethylene Plastic Film Products.

**1.3 SAMPLES**

- .1 Submit duplicate 200 x 400 mm samples of siding, soffit and rainwear materials, of colour and profile specified.

**1.4 SHOP DRAWINGS**

- .1 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, metal furring, and related work. All wall cladding to be submitted showing flashing techniques, fastening methods, description of systems and details at the various wall junctions, and all details must clearly indicate intention for air/vapour barrier continuity between trades.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Divert used metal cut-offs from landfill by disposal into the on-site metals recycling bin removed for disposal at the nearest metal recycling facility.
- .2 Divert reusable materials for reuse at nearest used building materials facility.
- .3 Divert unused caulking, sealants, and adhesive materials from landfill through disposal at hazardous material depot.
- .4 Place materials defined as hazardous or toxic waste in designated containers.

- .5 Ensure emptied containers are sealed and stored safely for disposal away from children.

## **2 Products**

### **2.1 STEEL CLADDING COMPONENTS**

- .1 Preformed Linear Soffiting:  
.1 **METAL LINEAR SOFFITING**  
Pre-finished Metal Linear Soffits. - Acceptable Material – Traditional Soffit – nominal thickness .42". For use at exterior, basket weave perforated (8.2 sq.in./sq. ft.) for ventilation, c/w carrier supplied with pre-punched lugs and cut-outs for modular splicing, provide application of reverse clips. Provide edge trims, face plates as required. Finish to be chosen from Manufacturer's standard range of colours. Provide all accessories, carrier clips, fasteners, splices, end plugs, lighting plates, etc. Finish to match paneling.
- .2 The minimum thickness of zee bars is to be 18 gauge, Z275 (690)
- .3 During the first 25 years of exterior exposure (and in the absence of aggressive fumes and/or other chemicals not normally encountered in the atmosphere), the paint film shall have no evidence of cracking, chipping, peeling, crazing, spotting or loss of adhesion apparent on normal outdoor visual observations.

### **2.2 RAINWEAR**

- .1 Rainwear: of pre-finished sheet steel as follows:  
.1 Downspouts: 200 mm wide x 100 mm deep, open FACE, closed top and bottom at 910 mm dimension, 22 gauge.  
.2 Provide end caps, corners, mitres, outlets, elbows, downspout straps, strainers, spikes and ferrules as required.  
.3 Two colours to be chosen by Contract Administrator's office.

### **2.3 ACCESSORIES**

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip, J-trim, fascia trim and window/door trim of same material, colour and gloss as cladding, with fastener holes pre-punched.
- .2 Provide the slotted (v crimped) sub girt and clip supports to allow for transition of condensation/water behind supports along the face of the self-adhesive air/vapour barrier.
- .3 Provide for ice deflectors/ snow fencing as required and to be shown on shop drawings c/w engineer's stamp (who is registered to practice in Ontario).
- .4 Provide prefinished Metal reveals between the vertical mounted prefinished cement board siding with fastener holes pre-punched.

### **2.4 FASTENERS**

- .1 Nails: to CSA B111. Screws to ANSI B18.6.4. Purpose made aluminium alloy.
- .2 Hidden fasteners, purpose made, thermally responsive full height clip system for roofing panels and designed to accommodate full insulation depth and allow for full thermal expansion/ contraction of exterior roof sheet and wind uplift and sliding snow.

### **2.5 CAULKING**

- .1 Sealants: to CAN/CGSB-19.24-M80, multi component, chemical curing  
.1 Test for acceptable VOC emissions in accordance with ASTM D 2369 and ASTM D 2832.  
.2 Acceptable materials: Environmental Choice Certification Program ECP-45

**2.6 SHEATHING PAPER**

- .1 Spunbonded Olefin Air Infiltration Barrier. For those areas constructed of wood framing and brick veneer.
  - .1 Acceptable product:
    - .1 'TYVEK' by Dupont Canada.
    - .2 'TYPAR' by Reemay Inc.

**3 Execution**

**3.1 INSTALLATION**

- .1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions.
- .2 Install one layer exterior wall sheathing paper horizontally.
- .3 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.
- .4 Install outside corners, fillers and closure strips with carefully formed and profiled work.
- .5 Install soffit and fascia cladding as indicated.
- .6 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .7 Attach components in manner not restricting thermal movement.
- .8 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 10 – Joint Sealing.
- .9 Install accessories as indicated.

**END OF SECTION**

**1 General**

**1.1 RELATED WORK**

- .1 Section 06 10 00 - Rough Carpentry
- .2 Section 08 11 14 - Steel Doors and Frames
- .4 Section 08 11 16 - Aluminum Doors and Frames

**1.2 REFERENCES**

- .1 ASTM A526M-85 Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
- .2 CAN/CGSB-37.5-M89 Cutback Asphalt Plastic Cement.
- .3 CAN/CGSB-93.1-M85 Sheet, Aluminum Alloy, Prefinished, Residential.
- .4 Canadian Roofing Contractors Association (CRCA).

**1.3 SHOP DRAWINGS AND SAMPLES**

- .1 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, colour and finish.

**2 Products**

**2.1 SHEET METAL MATERIALS**

- .1 Zinc coated steel sheet: 0.76 mm thickness (22 gauge), commercial quality to ASTM A526M, with Z275 designation zinc coating.
- .2 Use unpainted in unexposed areas.

**2.2 PREFINISHED STEEL SHEET**

- .1 Prefinished steel with factory applied polyvinylidene fluoride.
  - .1 Class F1S.
  - .2 Colour selected by Contract Administrator from manufacturer's standard range.
  - .3 Specular gloss: 30 units  $\pm$  in accordance with ASTM D523.
  - .4 Coating thickness: not less than 22 micrometres.
  - .5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20% to ASTM D822 as follows:
    - .1 Outdoor exposure period 2,500 hours.
    - .2 Humidity resistance exposure period 5,000 hours.

**2.3 SNOW GUARDS**

- .1 Acceptable Manufacturer:
  - .1 SNO-GEM Snow Guards  
4800 Metalmaster Way  
McHenry, IL 60050  
Phone: 888.766.4367  
Fax: 815.455.4367  
Email: info@snogem.com
- .2 Materials
  - .1 Liquid adhesive: SB-190 sealant adhesive.

## 2.4 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CGSB 37-GP-5Ma.
- .3 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32.
- .4 Sealants: to CSA/CGSB, 19.24M - multiple component, chemical curing. Dow, GE, Sika or Sonneborn are acceptable manufacturers.
- .5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.
- .6 Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.
- .7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .8 Touch-up paint: as recommended by prefinished material manufacturer.

## 2.5 FABRICATION

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details.
- .2 Form pieces in 2400 mm 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.

## 2.6 METAL FLASHINGS

- .1 Form flashings, drip edges, copings and fascias to profiles indicated of 0.45 mm thick prefinished steel.

## 3 Execution

### 3.1 INSTALLATION

- .1 Install sheet metal work in accordance with CRCA FL series details, and as detailed.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.
- .4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock forming tight fit over hook strips, as detailed.
- .5 Lock end joints and caulk with sealant.
- .6 Install surface mounted reglets true and level, and caulk top of reglet with sealant.
- .7 Insert metal flashing under cap flashing to form weather tight junction.
- .8 Caulk flashing at cap flashing with sealant.

**END OF SECTION**

**1 General**

**1.1 SECTION INCLUDES**

- .1 Materials, preparation and application for caulking and sealants.

**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 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).
  - .2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
  - .3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).
  - .4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
  - .5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
- .3 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .2 General Services Administration (GSA) - Federal Specifications (FS)
  - .1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

**1.3 SUBMITTALS**

- .1 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.
- .2 Submit duplicate samples of each type of material and colour.
- .3 Cured samples of exposed sealants for each colour where required to match adjacent material.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 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 WASTE MANAGEMENT AND DISPOSAL**

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Place materials defined as hazardous or toxic in designated containers.
- .3 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .4 Unused material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

- .6 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.

## 1.6 PROJECT CONDITIONS

- .1 Environmental Limitations:
  - .1 Do not proceed with installation of joint sealants under following conditions:
    - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
    - .2 When joint substrates are wet.
  - .2 Joint-Width Conditions:
    - .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
  - .3 Joint-Substrate Conditions:
    - .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

## 1.7 ENVIRONMENTAL REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.
- .3 Ventilate area of work by use of approved portable supply and exhaust fans.

## 1.8 WARRANTY

- .1 Product will not leak, crack, crumble, melt, shrink, run, lose adhesion or stain adjacent surface for a period of three (3) years.

## 2 Products

### 2.1 SEALANT MATERIALS

- .1 Sealants for vertical and horizontal non-traffic bearing joints and at exterior window and doorframes: to CAN/CGSB-19.13-M-80.
  - .1 Acceptable materials:
    - .1 Sika, Sikaflex 1A sealant.
    - .2 Mameco 921, Vulkem 116C or 921 sealant.
    - .3 Sonneborn NP1 (one compound).
    - .4 Bostik Chem-Calk 915
  - .2 Allow for colour matching to veneers and to mortar.
- .3 Sealants for vertical, non-traffic bearing joints and at masonry expansion joints: to CAN/CGSB-19.24-M80:
  - .1 Acceptable materials:
    - .1 Tremco, Dymeric sealant.
    - .2 Mameco, Vulkem 922 sealant.
    - .3 Sonneborn NP2 (two component).
    - .4 Bostik Chem-Calk 500
  - .2 Allow for colour matching to veneers and to mortar
- .4 Sealants for vertical and horizontal non-traffic bearing joints for interior use: CAN/CGSB-19.17-M90:

- .1 Acceptable materials:
  - .1 Sonneborn Sonolac.
  - .2 Bostik Chem-Calk 600
  
- .5 Sealants for ceramic tile, bath tubs, plumbing fixtures, etc. use: CAN/CGSB-19.22-M77.
  - .1 Acceptable materials:
    - .1 Tremco, Proglaze Silicone Sealant, 942-204 or 942-200.
    - .2 CGE, SCS 1702 sealant.
    - .3 Dow Corning, 8640 sealant or 786 sealant.
    - .4 Sonneborn Omnipus
  
- .6 Sealants for traffic bearing concrete expansion and control joints: CAN/CGSB-19.24-M80.
  - .1 Acceptable materials:
    - .1 Sonneborn SL2 with No. 733 Primer.
    - .2 Sika 2C with primer.

## **2.2 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) or neoprene foam backer, size as recommended by manufacturer.
  
- .4 Bond Breaker Tape
  - .1 Polyethylene bond breaker tape, which will not bond to sealant.

## **2.3 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 PREPARATION OF JOINT SURFACES**

- .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.

### **3.2 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.

### **3.3 BACKUP MATERIAL**

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape.

### **3.4 MIXING**

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

### **3.5 APPLICATION**

- .1 Sealant.
  - .1 Apply sealant in accordance with manufacturer's instructions.
  - .4 Apply sealant in continuous beads.
  - .5 Apply sealant using gun with proper size nozzle.
  - .6 Use sufficient pressure to fill voids and joints solid.
  - .7 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
  - .8 Tool exposed surfaces to give slightly concave shape.
  - .9 Remove excess compound promptly as work progresses and upon completion.
  - .10 Apply as indicated on drawings. Seal joints between window or door frames to adjacent building components, around the perimeter of every external opening, to control joints in masonry walls, perimeter of flooring in wet areas, plumbing fixtures (water closets, urinals, tubs, etc.) and millwork (counters, sills, cabinets, etc.).
  - .11 Apply sealant to conceal minor gaps between all finish surfaces.
- .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 Cleanup.
  - .1 Clean adjacent surfaces immediately and leave work neat and clean.
  - .2 Remove excess and droppings, using recommended cleaners as work progresses.
  - .3 Remove masking tape after initial set of sealant.

**END OF SECTION**