

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 07 46 13.

1.02 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C177-04 Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
 - .2 ASTM C203-99 Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal insulation.
 - .3 ASTM C518-04 Standard Test Method for Steady-State Thermal Trans-mission Properties by Means of the Heat Flow Meter Apparatus.
 - .4 ASTM D696-03 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 C and 30 C with a Vitreous Silica Dilatometer.
 - .5 ASTM D1621-04a Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 - .6 ASTM D2126-04 Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
 - .7 ASTM D2842-01 Standard Test Method for Water Absorption of Rigid Cellular Plastics.
 - .8 ASTM E96-00e1 Standard Test Methods for Water Vapor Transmission of Materials
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Canadian Gas Association (CGA)
 - .1 CAN/CGA-B149.1-05, Natural Gas and Propane Installation Code Handbook.
 - .2 CAN/CGA-B149.2-05, Propane Storage and Handling Code.
- .4 Canadian General Standards Board (CGSB)
 - .1 CGSB 71-GP-24M-77(R1983), Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.
- .5 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
 - .2 CAN/ULC-S102.2-03 Characteristics
 - .3 CAN/ULC-S604-M91, Standard for Type A Chimneys.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.06 WASTE MANAGEMENT AND DISPOSAL

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

2 PRODUCTS

2.01 INSULATION

- .1 Closed-cell expanded polystyrene, in compliance with standard CAN/ULC-S701, of type II, laminated with an air-blocking non vapor blocking and non woven membrane made of polystyrene fibers. Made without CFC and without HCFC and a nul ozone depletion potential.
 - .1 Thermal resistance in compliance with standard ASTM C-518:
RSI 0,82 for 25 mm
 - .2 Panel dimensions:
Width: 1200 mm
Length: 2440 mm
2745 mm
76 mm
Depth:
 - .3 Resistance to compression forces in compliance with standard ASTM D-1621:
110 kPa (16 lb/in²) min.
 - .4 Permeability to air in compliance with the technical evaluation guide for air blocking from the CCMC:
0.002 L/Pa·s·m² max.
 - .5 Permeability to vapor in compliance with standard ASTM E-96: 176.5
ng/Pa·s·m² (2.94 perm) max.
 - .6 Edges: rabbet set.
 - .7 Maximum usage temperature: 75°C (167°F) max.

2.02 ACCESSORIES

- .1 Board insulation tape.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

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

3.02 WORKMANSHIP

- .1 Install insulation after building substrate materials are dry.
- .2 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.
- .4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures and CAN/CGA-B149.1 and CAN/CGA-B149.2 type B and L vents.
- .5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.
- .6 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

3.03 EXAMINATION

- .1 Examine substrates and immediately inform Departmental Representative in writing of defects.
- .2 Prior to commencement of work ensure:
 - .1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.04 INSTALLATION OF INSULATION PANELS

- .1 Temporarily attach panels vertically on the exterior walls with nails and support rings.
- .2 Ensure that the nail heads do not go through to the air and vapor barrier so as to not break the seal. If the air and vapor barrier becomes damaged, seal with cover strip tape.
- .3 Properly adjust the insulation panels around wall openings.
- .4 Lay panels over the control or expansion joints, unglued to the substrate 75 mm on one side of the joint.
- .5 Seal all joints between panels so as to make them air and vapor tight with an air tight tape.
- .6 Seal, with a vapor and air tight product, the join between the openings, the floors and the ceilings. Before installing the doors, lay an air tight membrane band that overlaps the rough openings and panel. Seal the remainder of the air tight membrane with the cover strip tape.

- .7 Install connectors horizontally at an interval of 610 mm.
- .8 Leave a space of at least 75 mm between the insulation and any element radiating heat, for example cased lighting devices, and at least 50 mm between the insulation and evacuation pipes of types B and L in compliance with standards CAN/CGA-B149.1 and CAN/CGA-B149.2.
- .9 Carefully cut and size the insulation so that it fully occupies free spaces. Install joints tightly and shift vertical joints. Only use insulating panels that have non-broken or non-chipped edges. Use the largest panels possible so as to reduce the number of joints.
- .10 Do not cover the insulation before the installation work has been inspected and approved by the Representative of the Ministry.
- .11 The insulation must be covered within 120 days of its installation.

3.05 CLEANING

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

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 06 10 11 Rough Carpentry.
- .2 Section 07 46 13 Preformed metal siding
- .3 Section 07 62 00 Sheet Metal flashing
- .4 Section 07 92 00 Joint sealants

1.02 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C 553-02, Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.
 - .2 ASTM C 665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - .3 ASTM C 1320-05, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
- .2 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.05 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

2 PRODUCTS

2.01 SUSTAINABLE REQUIREMENTS

- .1 Not used

2.02 INSULATION

- .1 Batt and blanket mineral fibre: to CAN/ULC S702.
 - .1 Type: 1.
 - .2 Thickness: as indicated.

2.03 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.
- .4 Tape: as recommended by manufacturer.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

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

3.02 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 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S604 Type A chimneys and CAN/CGA-B149.1 and CAN/CGA-B149.2 Type B and L vents.
- .5 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

3.03 CLEANING

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

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 06 10 00 Rough Carpentry.

1.02 REFERENCES

- .1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)
- .2 Green Seal Environmental Standards
 - .1 Standard GC-03-93, Anti-Corrosive Paints.
 - .2 Standard GS-11-97, Architectural Paints.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1113-06, Architectural Coatings.
- .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101-04, Fire Endurance Tests of Building Construction and Materials.
 - .2 CAN/ULC-S102-03, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
 - .3 CAN/ULC-S705.1-01, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification.
 - .4 CAN/ULC-S705.2-05, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Application.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies WHMIS MSDS - Material Safety Data Sheets.
- .3 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.

1.04 QUALITY ASSURANCE

- .1 Applicators to conform to CUFCA Quality Assurance Program.
- .2 Qualifications:
 - .1 Installer: person specializing in sprayed insulation installations with 5 years experience approved by manufacturer.
 - .2 Manufacturer: company with minimum 5 years experience in producing of material used

for work required for this project, with sufficient production capacity to produce and deliver required units without causing delay in work.

- .3 Mock-up:
 - .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct mock-up 10 m² minimum, of sprayed insulation.
 - .3 Mock-up may be part of finished work.
 - .4 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with sprayed insulation work.
- .4 Health and Safety Requirements: worker protection:
 - .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
 - .2 Workers must wear gloves, respirators, dust masks, long sleeved clothing, eye protection, protective clothing when applying foam insulation.
 - .3 Workers must not eat, drink or smoke while applying foam insulation.

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.06 SITE CONDITIONS

- .1 Ventilate area to receive insulation continuously.
- .2 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.
- .3 Apply insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

2 PRODUCTS

2.01 MATERIALS

- .1 Insulation: spray polyurethane to CAN/ULC-S705.1.
- .2 Primers: in accordance with manufacturer's recommendations for surface conditions.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including

product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 APPLICATION

- .1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.
- .2 Use primer where recommended by manufacturer.
- .3 Apply sprayed foam insulation as indicated.

3.03 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.04 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

1 GENERAL

1.01 CONTENTS OF THE SECTION

- .1 Requirements regarding metal cladding as well as related method of installation.

1.02 RELATED REQUIREMENTS

- .1 Section 01 74 21 Construction/Demolition Waste Management and Disposal
- .2 Section 07 21 13 Board insulation.
- .3 Section 07 62 00 Sheet metal flashing
- .4 Section 07 92 00 Joint sealants.

1.03 REFERENCES

- .1 American National Standards Institute (ANSI).
 - .1 ANSI B18.6.4-99, Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws.
- .2 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM D 2369-03, Test Method for Volatile Content of Coatings.
 - .2 ASTM D 2832-92(R1999), Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 - .3 ASTM D 5116-97, 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.
- .4 Canadian Standards Association (CSA International).
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product data: submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.05 WASTE MANAGEMENT AND DISPOSAL

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

2 PRODUCTS

2.01 STEEL CLADDING AND COMPONENTS

- .1 Strip siding: to CGSB 93-GP-4M, in prepainted steel, size 26, colour selected by Ministry Representative.
- .2 Soffit: to CGSB 93.4, Class plain patterned]:
 - .1 Colour: selected by [Departmental Representative.
 - .2 Gloss: low.
 - .3 Size 24
- .3 Fascia facings and exposed trim: to CGSB 93.4, Class plain patterned]:
 - .1 Colour: selected by Departmental Representative.
 - .2 Gloss: low.
 - .3 Size 24
- .4 Outer corner with rabbet to hide the extremity of the covering: size 24, colour of the wall covering.
- .5 Jambs: Size 24, colour of the wall covering.
- .6 Drip edge: Size 24, colour of the wall covering.
- .7 Visible embellishments: Internal or salient angle pieces, counter-flashing, crowning bands, bibs, starting bands, threshold and support garnitures as well as window and door framing embellishments must be of the same material, couleur and gloss as the cladding and be pre-piercing to receive settings.
- .8 Ties: Self-tapping screws made of galvanized steel with hexagonal heads and of the colour of the wall covering, of required length and width for the needs of the work.
- .9 Joint sealants: In compliance with the prescription of section 07 92 10 – Joint sealants, of the colour of the surface on which they are applied.
- .10 Panneled sub-girt (Z-bar) size 18 in zinc-plated steel with a minimum thickness of 115 mm.

2.02 CAULKING

- .1 Sealants: Polyurethane based type sealant.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

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

3.02 INSTALLATION

- .1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions.
- .2 Install continuous starter strips, outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.
- .3 Install outside corners, fillers and closure strips with carefully formed and profiled work.
- .4 Install soffit and fascia cladding as indicated.
- .5 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .6 Attach components in manner not restricting thermal movement.
- .8 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealing.

3.03 CLEANING

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

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 07 92 00 Joint sealants.

1.02 REFERENCES

- .1 Roofing and sheet metal works shall be performed in accordance with the written instructions from membranes' manufacturer.
- .2 CAN CSA A82.27-M1977, Gypsum Board Products+
- .3 CSA B35.3-1962 Tapping and Drive Screws (Slotted and Recessed Head, Thread Forming and Thread Cutting Screws, and Metallic Drive Screws).
- .4 CSA O121-08, Douglas Fir Plywood
- .5 CSA O151-04, Canadian Softwood Plywood.
- .6 CGSB 37-GP-56M-80b(A1985), Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
- .7 CAN/ULC-S704-03, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
- .8 CAN/ULC-S702.2-03, Standard for Mineral Fibre Thermal Insulation for Buildings.
- .9 CAN/ULC-S706-02, Standard for Wood Fibre Thermal Insulation for Buildings.
- .10 ASTM C-209.
- .11 CSA A123.21-04, Standard Test Method for the Dynamic Wind Uplift Resistance of Mechanically Attached Membrane-Roofing Systems.

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 All water-proofing materials will be supplied by the same manufacturer. Also, supply the Architect with a written declaration certifying that the material and the components of the covering system are compatible with each other.
- .2 Submit two (2) copies of the most recent technical sheets. These sheets must show the physical properties of the materials.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide two copies of most recent technical roofing components data sheets describing materials' physical properties and include product characteristics, performance criteria,

- physical size, finish and limitations.
- .2 Provide [two] copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements indicate VOC content for:
 - .1 Primers.
 - .2 Asphalt.
 - .3 Sealers.
 - .4 Filter fabric.
- .3 Provide shop drawings:
 - .1 Indicate flashing, upstands and parapets details.
- .4 Manufacturer's Certificate: certify that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- .1 The Installer Contractor and their subcontractors must, at the moment of bidding and throughout the working period, possess a contractor-installer operating license.
- .2 Only a competent and certified in installation work force, employed by a company in possession of adequate and necessary equipment for such work, can execute said work. Also, the workers involved in weldable membranes must have taken the fire security course given by l'Institut de Prévention Incendie du Québec (IPIQ), and at least 50% of them must have taken the Soudage sécuritaire course given by the AMCQ.

1.06 MANUFACTURER'S REPRESENTATIVE

- .1 At the start of water-proofing work, a water-proofing material manufacturer's representative can be present at the work site.
- .2 The contractor must at all times permit and facilitate the access to the work site and to the roofs for all representatives of the manufacturer previously mentioned.

1.07 FIRE PROTECTION

- .1 Portable extinguishers
 - .1 Portable extinguishers: keep on the roof, for each torch, an auxiliary bottle extinguisher or a permanent pressure extinguisher, rechargeable and equipped with an adjustable projection pipe. The extinguisher must be placed within 10 m of the torch.

1.08 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions, in their original packaging, displaying the name of the manufacturer, the name of the product, its weight, and the standards related to it and all other indication or reference accepted as standard.
- .2 The materials will be adequately protected and permanently stored in a dry sheltered area, ventilated, sheltered from direct flames or welding sparks, protected from the elements and all other damaging substance. Only material that will be used in the same day will be taken out of this sheltered area. During the winter period, the material will be preferably stored in a sheltered area heated to a minimum of 10°C and taken out as needed. If the rolls cannot be stored in a heated sheltered area, they can be reheated prior to installation, using a torch. For a detailed

description, consult the section on the installation of membranes in «Guide du couvreur» of the manufacturer.

- .3 Store the adhesives and the emulsion based waterproofing sealant at a temperature of at least +5°C. Store adhesives and solvent based waterproofing putty at a sufficiently high temperature so as to assure their application malleability.
- .4 Material delivered in rolls will be carefully stored upright; flashing will be stored in such a way as to prevent creasing, twisting, scratching and other damages.
- .5 Avoid the accumulation of materials on the roofs, which could, in certain areas, compromise the solidity of the structures by imposing forces greater than those admissible.
- .6 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan section 01 74 21 – Management and elimination of construction/demolition waste.
- .7 Fold up metal banding, flatten and place in designated area for recycling.

1.09 SITE CONDITIONS

- .1 Ambient Conditions
 - .1 Do not install roofing when temperature remains below -18 degrees C for torch application, or -5 degrees C to manufacturers' recommendations for mop application.
 - .2 Minimum temperature for solvent-based adhesive is -5 degrees C.
 - .3 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

1.10 WARRANTY

- .1 The manufacturer of sealant product will provide a written and signed document, issued by the name of the owner, guaranteeing the products for a period of ten (10) years from the date of installation of the membranes. This guarantee will cover the removal and replacement of defective products serving as roofing membranes including the workforce. The guarantee must be full and complete for the guaranteed period specified. No letter from the manufacturer modifying their standard guarantee will be accepted, the certificate must reflect the present requirements.
- .2 The manufacturer will provide a written and signed document, issued by the name of the owner, certifying that the work realized will remain in place and be free from all defaults of sealing for a period of five (5) years from the date of acceptance of work.
- .3 The contractor will provide a certificate of guarantee from the Association AMCQ for the project, valid for a ten (10) year period.

2 PRODUCTS

2.01 PRIMER

- .1 Description: The primer must consist of volatile solvents, synthetic rubber SBS and strongly adhesive resin. It can be used on porous supports such as gypsum with fiberglass coating, wood, metal or concrete.

2.02 SURFACE MEMBRANE SYSTEM

- .1 Description: Sealant system in which the sub-layer is a reinforced bitumen elastomer membrane, laminate in shop by cold press on a rigid wool-fiber panel fabricated from basalt and of steel slags with a fusion point of approximately 2180°F. The membrane exceeds the paneling for 2.5 cm on one side and for 8.5 cm on one of the two sides to allow for overlap. The finishing membrane made of elastomer reinforcing and bitumen. The sub-face is covered in a plastic thermofusible film and the superior face is protected by colored granules.
- .2 Components:
 - .1 Reinforcements: glass and non-woven polyester veil
 - .2 Pannel: Mineral-wool
 - .3 Elastomer bitumen: mix of selected bitumen and SBS polymer
- .3 Characteristics of the panels:
 - .1 Material: fire resistant wood fibre panels
 - .2 Dimensions
 - .3 Thickness: 12.7 mm
 - .4 R value: 2
- .4 Characteristics of membrane system
 - .1 Traction resistance (kN/m) longitudinal= 18 Transversal=16.
 - .2 Deformation resistance (kN/m) longitudinal= 11 Transversal=10.5
 - .3 Elongation at rupture (%) longitudinal=60, Transversal=60
 - .4 Cold flexibility -30°C: No cracking
 - .5 Softening point (°C): ≥110
 - .6 Resistance to static stamping (N): 380
- .5 Prefabricated membrane, in compliance with standards CAN/CGSB 37-GP-56M 9e ébauche

2.03 FIXINGS FOR SUB-LAYER PANEL

- .1 Description: mechanical fixings Philips no 14 composed of extra-hard carbon steel and covered with an anti-corrosion layer according to FM standards. The plates are notched and have a 50 mm diameter in compliance with FM4470.
- .2 Characteristics of screws:
 - .1 Extra hard carbon steel
 - .2 Corrosion resistant: exceeds FM 4470
 - .3 Resistance to wrenching (kg) Steel (Size 22): 222
 - .4 Plywood 19 mm: 295
 - .5 Concrete (5500 psi): 404
- .3 Characteristics of plates
 - .1 Galvalume
 - .2 Diameter: 50 mm
 - .3 Size: 20

2.04 MEMBRANE SYSTEMS FOR UPSTANDS AND PARAPET (self-adhesive sub-layer)

- .1 Description: Sealant system composed of membranes composed of elastomer reinforcement and bitumen and of which the sub-layer is self-adhesive. The superior face of the sub-layer is covered

with a thermofusible plastic film; its adhesive sub-face is protected by a detachable silicone paper. The superior face of the membrane is covered with a thermofusible plastic film. The finishing membrane is installed by torch.

- .2 Components of reinforcement: combination of glass and polyester. Elastomer bitumen: mix of selected bitumen and SBS polymer.
- .3 Characteristics of the membrane system
 - .1 Deformation resistance (kN/m) longitudinal=8,5 transversal=8,3
 - .2 Traction resistance (kN/m) longitudinal=18 transversal=16
 - .3 Elongation at rupture (%) longitudinal=55, Transversal=56
 - .4 Ripping resistance (N): 120
 - .5 Resistance to static stamping (N): ≥ 380
 - .6 Dimensional stability (%) longitudinal=0,1 Transversal=0,4
 - .7 Creep (°C): 105
 - .8 Cold flexibility -30°C: No cracking
- .4 Prefabricated membrane, in compliance with standard CAN/CGSB 37,56M 9e edition

2.05 SEALERS

- .1 Sealer products: modified SBS bitumen based sealer, of fibers, mineral matter and of solvent containing aluminum pigments for a greater UV ray protection.

3 EXECUTION

3.01 EXAMINATION AND PREPARATION OF SURFACES

- .1 Before the start of work, the owner's representative and the foreman on cover, will have the responsibility of inspecting and approving the condition of the bridging (slopes and backing, if existant) as well as the upstands on parapet walls, roof drains, plumbing air-vents, ventilation exits and others, construction joints, etc. A non-conformity warning, if it is the case, will be issued to the contractor so he can proceed with corrective measures. The starting of the work will be considered as an acceptance of the conditions regarding the realization of the work.
- .2 Do not begin any part of work before the surfaces are clean, smooth, dry, free of ice, snow and waste material. The usage of salt or calcium is prohibited to remove ice or snow.
- .3 Make sure that all plumbing work, carpentry and others have been duly completed.
- .4 Do not install any material during times of snow or rain.

3.02 METHOD OF IMPLEMENTATION

- .1 Prepare the surfaces and execute sealing work in compliance with the requirement of the manufacturer, including the «Roofer's Guide».
- .2 Install roofing elements on clean and dry surfaces, in compliance with prescriptions and recommendations of the manufacturer.

- .3 Roofing work must be executed continuously following the readiness of the surfaces and the climatic conditions.
- .4 Seal all sub-layer joints that are not covered by a finishing membrane on that day. In no case should there be humidity trapped in the joints before the installation of a second membrane.
- .5 In all cases where the membrane is installed by torch, a continuous and of consistent thickness welding bead of melted bitumen must be visible in front of the rolls during welding.
- .6 Maintain at all times the sealing on the roof including during the execution of work by other types of workers, and progressively as work is executed (drains, air vents, etc)

3.03 PROTECTION OF SITES

- .1 During the transportation of materials on roofs and during roofing work, protect exposed surfaces of finished work in order to avoid damages. Make traffic routes with rigid panels on roofs, over the material put in place, in order to permit the passage of people and material. Assume the entire responsibility for eventual spills.
- .2 At the end of each work day or when work is interrupted because of bad weather, protect finished surfaces as well as material that has been removed from shelter or from storage area.

3.04 APPLICATION OF THE FINISHING LAYER

- .1 The surfaces of wood, metal, concrete, masonry or the sealing supports in gypsum will receive a finishing coat at a rate of 0,15 to 0,25 l/m². All application surfaces must be clear of rust, dust or residue that could affect adherence. The surface finished with a finishing coat must be covered with a membrane as soon as possible (the same day in the case of self-adhesive membranes).

3.05 INSTALLATION OF MEMBRANES

- .1 Install membranes in strict compliance with the manufacturer's requirements. See to this effect the master technical specification contained in the manufacturer's manual, as well the the «Roofer's Guide».

3.06 INSTALLATION OF SUB-LAYER PANELS ON THE CURRANT PORTION

- .1 Mechanically fix the sub-layer panels with a binding every 450 mm (18 inches) in the overlap. On steel support, the screws must be pushed in the superior portion of the grooves on the decking.
- .2 All panels must be perfectly joined, cannot be accused of important misalignment in juxtaposition and must be adhered and subjected to all their surfaces.
- .3 Weld all transversal overlaps.
- .4 The transversal overlaps will be sealed by torch welding a protective band of 300 mm, centered on the joint.

3.07 APPLICATION OF THE ELASTOMER FINISHING COAT

- .1 The surfaces of wood, metal, concrete, masonry or the sealing supports in gypsum will receive a finishing coat at a rate of 0,3 to 0,5 l/m² on pourous supportd and of 0,1 to 0,25 l/m² on smooth supports. All application surfaces must be clear of rust, dust or residue that could affect

adherence. The surface finished with a finishing coat must be covered with a self-adhesive membrane the same day.

3.08 INSTALLATION OF THE SELF-ADHESIVE SUB-LAYER TO UPSTAND AND PARAPET

- .1 Before application of membrane, always burn the pellicle of plastic of the part to cover when there is overlap (interior corner, exterior and current surface).
- .2 Position the pre-cut membrane. Detach 4 to 6 inches (150 mm) of silicone paper to be put on the superior portion of the parapet in order to maintain in place.
- .3 Remove progressively the rest of the silicone paper while applying on the membrane with aluminum applicator to favor adhesion. Use this same applicator to obtain a perfect transition between the upstand and the current surface. Pass a rubber roller on the membrane to get a total adhesion.
- .4 Install a reinforcing gusset on all interior and exterior angles.
- .5 Always seal overlaps before the end of the work day.

3.09 INSTALLATION OF REINFORCING GUSSET

- .1 Install the reinforcing gusset in alignment with interior and exterior angles.
- .2 Install thermofusible gussets after the installation of the self-adhesive sub layer or install the self-adhesive gussets before the installation of the self-adhesive sub layer.

3.10 POSE OF FINISHING COAT ON THE CURRENT PORTION

- .1 After having applied the sub-layer and being assured that it does not present any deficiencies; we proceed with the posing of the finishing coat.
- .2 Use the starting double gallon rolls from the start for the first edge. If a start roll isn't used, the longitudinal overlap covered in granules will have to be degranulated by dipping them into heated bitumen by torch on a width of 75 mm.
- .3 The finishing coat will start at the drain. We will take care to align the first edge (parallel to the edge of the roof).
- .4 This finishing coat will the welding by torch recommended by the manufacturer of the membranes, on the sub-layer membrane. This application consists of melting simultaneously the sub-layer membrane and the finishing membrane so as to fusion the two. Maintain an appropriate welding fusion rhythm.
- .5 Make sure to proceed without overheating the membranes nor their respective reinforcements.
- .6 Make sure to have an offset of at least 300 mm between sub-layer joints and finishing layer joints.
- .7 The overlaps in the finishing layer will have 75 mm parallel and 150 mm for the end joints. At transversal overlaps, cut at an angle the corners of the membranes to cover before welding. All overlaps must be done on granule free surfaces or granule removed surfaces.

- .8 Make sure the welding is perfect and total between the two membranes and do not leave non welded zones. A particular attention will be paid so the membrane does not have air pockets, folds. In cold times, adjust the speed of welding in order to achieve a homogenous weld. (It may be necessary to reduce the rhythm depending on the case)
- .9 After the pose of the finishing membrane, we will proceed to a verification of the overlap joints.
- .10 During the pose, a particular attention will be paid so as to not create accumulation of bitumen at joints.

3.11 POSE OF FINISHING COAT ON UPSTAND AND PARAPETS

- .1 This finishing coat will be disposed by an element of one meter in length. The longitudinal overlaps will be of 75 mm and will be spaced at least 100 mm in relation to those of the current finishing layer in order to avoid all overthickness. The overlaps on the current portion will have 50 mm more than those on the sub layer of the upstands and parapets. For transversal coverings, cut at an angle the corner of the zone that will be covered by the next roll.
- .2 With a cord, draw a straight line on the current surface, at 50 mm more than the sub-layer of the upstands and parapets.
- .3 With a torch and a round ended trowel, push the surface granules in the hot bitumen layer from the drawn line until the edge of the upstand or the parapet as well as on the granule vertical parts to overlap.
- .4 This finishing coat will be welded by torch directly on the sub-layer by proceeding from the bottom to the top. This application consists in softening the two membranes to get a homologous weld.
- .5 During the pose, a particular attention must be paid to not overheat the membrane nor to create accumulation of bitumen at joints.

3.12 ON-SITE QUALITY CONTROL

- .1 Inspection
 - .1 The inspection and testing relative to roofing will be carried out by the trial laboratory designated by the Ministry representative.

3.13 CLEANING

- .1 Remove all bitumen marks on finished surfaces.
- .2 When finished surfaces are dirtied after work that is subject to the current section, address the manufacturer of the affected surface to obtain tips on cleanings and follow his instructions.
- .3 Repair or replace finished surfaces that have been altered or otherwise damaged as a result of work that is subject to the current section.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 07 46 13 Preformed metal siding.
- .2 Section 07 52 00 Modified bituminous membrane.
- .3 Section 07 92 00 Joint sealants.

1.02 REFERENCES

- .1 Canadian Roofing Contractors Association (CRCA)
- .2 American Society for Testing and Materials International (ASTM)

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide shop drawings necessary in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Samples:
 - .1 Submit duplicate 50 x 50] mm samples of each type of sheet metal material, finishes and colours.

1.04 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.01 SHEET METAL MATERIALS

- .1 Aluminum-zinc alloy coated steel sheet: to ASTM A 792/A 792M, commercial quality, with AZ150 coating, 0,8 mm base metal thickness.
- .2 Aluminum-zinc alloy coated steel sheet: to ASTM A 792/A 792M, commercial quality, with AZ150 coating, 0,2 mm base metal thickness.

2.02 PREFINISHED STEEL SHEET

- .1 Prefinished steel with factory applied silicone modified polyester.
 - .1 Colour selected by Departmental Representative from manufacturer's standard range.
 - .2 Specular gloss: 30 units +/- 5 in accordance with ASTM D 523.
 - .3 Coating thickness: not less than 25 micrometres.
 - .4 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and

erosion rate less than 20 % to ASTM D 822 as follows:

- .1 Outdoor exposure period 1000 hours.
- .2 Humidity resistance exposure period 1000 hours.

2.03 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32.
- .4 Sealants: in accordance to section 07 92 00 Joint sealants.
- .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 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.
- .9 Touch-up paint: as recommended by prefinished material manufacturer.

2.04 FABRICATION

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details.
- .2 Fabricate aluminum flashings and other sheet aluminum work in accordance with AAI-Aluminum Sheet Metal Work in Building Construction.
- .3 Form pieces in 2400 mm maximum lengths.
 - .1 Make allowance for expansion at joints.
- .4 Hem exposed edges on underside 12 mm.
 - .1 Mitre and seal corners with sealant.
- .5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

2.05 METAL FLASHINGS

- .1 Form flashings, copings and fascias to profiles indicated of 0,65 mm thick galvanized prefinished board, size 24 for form flashing and colour selected by Departmental representative.

2.06 EAVES TROUGHS AND DOWNPIPES

- .1 Form eaves troughs and downpipes from galvanized prefinished sheet metal.

- .2 Provide goosenecks, outlets, strainer baskets and necessary fastenings.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 INSTALLATION

- .1 Install sheet metal work in accordance with CRCA FL series details, FL de l'ACEC, AAI-Aluminum Sheet Metal Work in Building Construction.
- .2 Use concealed fastenings except where approved before installation.
- .3 Provide underlay under sheet metal.
 - .1 Secure in place and lap joints 100 mm.
- .4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs.
 - .1 Flash joints using S-lock forming tight fit over hook strips.
- .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 into reglets under cap flashing to form weather tight junction.
- .8 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.
- .9 Caulk flashing at reglet, cap flashing with sealant.

3.03 EAVES TROUGHS AND DOWNPIPES

- .1 Install eaves troughs and secure to building at 750 mm on centre with eaves trough spikes through spacer ferrules.
 - .1 Slope eaves troughs to downpipes as indicated.
 - .2 Solder and Seal joints watertight.
- .2 Install downpipes and provide goosenecks back to wall.
 - .1 Secure downpipes to wall with straps at 1800 mm on centre; minimum two straps per downpipe.
 - .2 Move the rainwater downpipes away from the building.

3.04 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.05 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

1 GENERAL

1.01 CONTENTS OF THE SECTION

- .1 Materials, preparatory work and installation methods associated with sealant and draughtproofing products.
- .2 Paragraphs destined to complete other sections containing prescriptions relative to the sealing or draughtproofing of work.

1.02 RELATED REQUIREMENTS

- .1 Section 01 74 21 Construction/Demolition Waste Management And Disposal
- .2 Section 07 21 16 Blanket insulation
- .3 Section 07 46 13 Preformed metal siding.
- .4 Section 07 52 00 Modified bituminous membrane
- .5 Section 07 62 00 Sheet metal flashing
- .6 Section 08 11 00 Metal doors and frame

1.03 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C 919-02, 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.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's product to describe.
 - .1 Caulking compound.
 - .2 Primers.
 - .3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- .3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

- .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 01 33 00 - Submittal Procedures.
 - .1 Instructions to include installation instructions for each product used.

1.05 QUALITY ASSURANCE/MOCK-UPS

- .1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.
- .2 Construct mock-up to show location, size, shape and depth of joints complete with back-up material, primer, caulking and sealant.
- .3 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
- .4 Locate where directed.
- .5 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with sealant work.
- .6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. [Approved mock-up may remain as part of finished Work. Remove mock-up and dispose of materials when no longer required and when directed by Departmental Representative.

1.06 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.07 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Place materials defined as hazardous or toxic in designated containers.
- .4 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .5 Unused sealant 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.

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

1.08 SITE 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.

1.09 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.

2 PRODUCTS

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

2.02 SEALANT MATERIAL DESIGNATIONS

- .1 Polysulfide One Part.
 - .1 Non-Sag to CAN/CGSB-19.13, MC-2-25-B-N, colour similar.
- .2 Silicones One Part.
 - .1 To CAN/CGSB-19.13-M87, size 25.
- .3 Polysulfide One Part.
 - .1 To CAN/ONGC-19.13-M87. Classified C-1-25-B-N.
- .4 Acoustical Sealant.

- .1 To CAN/CGSB-19.21-87.
- .5 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.
foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.
 - .3 Bond Breaker Tape.
 - .1 Polyethylene bond breaker tape which will not bond to sealant.

2.03 SEALANT SELECTION

- .1 Perimeters of exterior openings where frames meet exterior facade of building (sheet metal siding): Sealant type: polysulfide.
- .2 Expansion and control joints in exterior surfaces of poured-in-place concrete walls: Sealant type: polysulfide.
- .3 Exterior joints in horizontal wearing surfaces (as itemized): Sealant type: polysulfide.
- .4 Seal interior perimeters of exterior openings as detailed on drawings: Sealant type: polysulfide.

2.04 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

3.01 PROTECTION

- .1 Protect installed Work of other trades from staining or contamination.

3.02 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.

3.03 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.

3.04 BACKUP MATERIAL

- .1 Apply bond breaker tape where required to manufacturer's instructions.
- .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.

3.05 MIXING

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

3.06 APPLICATION

- .1 Sealant.
 - .1 Apply sealant in accordance with manufacturer's written instructions.
 - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - .3 Apply sealant in continuous beads.
 - .4 Apply sealant using gun with proper size nozzle.
 - .5 Use sufficient pressure to fill voids and joints solid.
 - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - .8 Remove excess compound promptly as work progresses and upon completion.
- .2 Curing.
 - .1 Cure sealants in accordance with sealant manufacturer's instructions.
 - .2 Do not cover up sealants until proper curing has taken place.
- .3 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