

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01330 - Submittal Procedures.
- .2 Section 07550: Modified Bituminous Roofing.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB).
 - .1 CGSB 71-GP-24M-[77(R1983)], Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.
 - .2 Underwriters Laboratories of Canada (ULC).
 - .1 CAN/ULC-S701-[01], Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
- .3 Environmental Choice Program (EPC).
 - .1 CCD-016-[97], Thermal Insulation.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01330 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01330 - Submittal Procedures Indicate VOC's insulation products and adhesives.
- .2 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.
- .4

1.5 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 INSULATION

- .1 Rigid cellular polystyrene: to CAN/ULC-S701.
 - .1 Type: 4.
 - .2 Compressive strength: 170
 - .3 Thickness: as indicated.
 - .4 Size: 600 x 1200.
 - .5 Edges: shiplapped].

2.2 ACCESSORIES

- .1 Insulation clips: 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.

Part 3 Execution

3.1 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.

3.2 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.
- .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 Offset both vertical and horizontal joints in multiple layer applications.

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

3.3 EXAMINATION

- .1 Examine substrates and immediately inform Contract Administrator 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.

3.4 RIGID INSULATION INSTALLATION

- .1 Employ thermal studs in accordance with manufacturer's recommendations.

3.5 PERIMETER FOUNDATION INSULATION

- .1 Exterior application: extend boards as indicated. Install on exterior face of perimeter foundation wall with thermal studs.

3.6 CAVITY WALL INSTALLATION

- .1 Install polystyrene insulation boards on outer surface of inner wythe of wall cavity utilizing thermal studs

3.7 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01330 - Submittal Procedures.

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-S702-[1997], Standard for Mineral Fibre Insulation.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01330 - Submittal Procedures.

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.

Part 2 Products

2.1 INSULATION

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

2.2 ACCESSORIES

- .1 Nails: galvanized steel, length to suit insulation plus [25] [____] mm, to CSA B111.
- .2 Staples: [12] [____] mm minimum leg.
- .3 Tape: as recommended by manufacturer.

Part 3 Execution

3.1 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.

3.2 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.
- .5 Do not enclose insulation until it has been inspected and approved by Contract Administrator.

3.3 CLEANING

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

END OF SECTION

Part 1 General

1.1 Related Sections

- .1 Section 01450 - Quality Control.

1.2 References

- .1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)
- .2 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101-1989, Fire Endurance Tests of Building Construction and Materials.
 - .2 CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building Materials and Assemblies.
 - .3 CAN/ULC-S705.1-01, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Material Specification.
 - .4 CAN/ULC-S705.2-02, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Installer's Responsibilities-Specification.

1.3 Test Reports

- .1 Submit test reports, verifying qualities of insulation meet or exceed requirements of this specification, in accordance with Section 01450 - Quality Control.
- .2 Submit test reports in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.

1.4 Quality Assurance

- .1 Applicators to conform to CUFCA Quality Assurance Program.

1.5 Safety Requirements

- .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
 - .1 Workers must wear gloves, respirators, long sleeved clothing, eye protection when applying foam insulation.
 - .2 Workers must not eat, drink or smoke while applying foam insulation.

1.6 Protection

- .1 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24]hour after application to maintain non-toxic, unpolluted, safe working conditions.
- .2 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.

- .3 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

1.7 Waste Management and Disposal

- .1 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .2 Dispose of waste foam daily in location designated by Contract Administrator and decontaminate empty drums in accordance with [CAN/ULC-S705.2].

1.8 Environmental Requirements

- .1 Apply insulation only when surfaces and ambient temperatures are within manufacturers' prescribed limits.

Part 2 Products

2.1 Materials

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

Part 3 Execution

3.1 Application

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

END OF SECTION

Part 1 General

1.1 Section Includes

- .1 Materials and installation methods providing airvapour barrier materials and assemblies.
- .2 Air/vapour barrier materials to provide continuous seal between components of building envelope and building penetrations.

1.2 Related Sections

- .1 Section 07900 - Joint Sealers.

1.3 References

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.
 - .2 CAN/CGSB-19.18M-M87] Sealing Compound, One Component, Silicone Base Solvent Curing.
 - .3 CAN/CGSB-19.24M-M90, Multi-Component, Chemical Curing Sealing Compound.
 - .4 CGSB 19-GP-14M-76, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.
- .2 NBCC 1995; Part 5 - Environmental Separation
- .3 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

1.4 Submittals

- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Submit manufacturer's product data sheets in accordance with Section 01330 - Submittal Procedures
- .3 Submit manufacturer's installation instructions in accordance with Section 01330 - Submittal Procedures.

1.5 Quality Assurance

- .1 Perform Work in accordance with Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification requirements for materials and installation.

1.6 Qualifications

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

- .2 Applicator: Company who is currently licensed by certifying organization must maintain their license throughout the duration of the project.

1.7 Mock-Up

- .1 Construct mock-up in accordance with Section 01450 - Quality Control.
- .2 Construct typical exterior wall panel 5m long by 0.800 m high.
- .3 Locate where directed.
- .4 Mock-up may remain as part of the Work.
- .5 Allow 24 h for inspection of mock-up by Contract Administrator before proceeding with air/vapour barrier Work.

1.8 Pre- Installation Meetings

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

1.9 Delivery, Storage and Handling

- .1 Deliver, store and handle materials in accordance with Section 01610 - Basic Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Avoid spillage. Immediately notify Contract Administrator if spillage occurs and start clean up procedures.
- .4 Clean spills and leave area as it was prior to spill.

1.10 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.

1.11 Project Environmental Requirements

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

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.

Part 2 Products

2.1 Sheet Materials

- .1 Sheet Seal Type 1: Self-Adhesive bitumin laminated to high-density polyethylene film,
 - .1 Acceptable material: Grace 'Perma-Barrier'.
- .2 Sheet Seal Type 2: Thermofusable elastomeric bitumin membrane reinforced with a glass mat.
 - .1 Acceptable material: Soprema 'Sopra-flam'
- .3 Foam Seal [Type [4]]: Spray-applied medium density spray polyurethane foam insulation/air/vapour barrier.

2.2 Sealants

- .1 Sealants in accordance with Section 07900 - Joint Sealers.

Part 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] [Consultant] 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 Install sheet seal between window and door frames and adjacent wall seal materials with sealant and mechanically fastened galvanized metal cleats
- .3 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

3.4 Protection of Work

- .1 Protect finished Work in accordance with Section [01610 - Basic Product Requirements].
- .2 Do not permit adjacent work to damage work of this section.
- .3 Ensure finished Work is protected from climatic conditions.

END OF SECTION

Part 1 General

1.1 Related Sections

- .1 Section 07900 - Joint Sealers.

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 D 2369-98, Standard Test Method for Volatile Content of Coatings.
 - .2 ASTM D 2832-92(R1994), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
 - .3 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 Aluminum Siding, Soffits and Fascia, for Residential Use.
 - .3 CAN/CGSB-93.3-[M91], Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use.
 - .4 CAN/CGSB-93.4-[92], Galvanized Steel and Aluminum-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 samples in accordance with Section 01330 - Submittal Procedures.
- .2 Submit duplicate 300 x 300 mm samples of siding material, of colour and profile specified.

1.4 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.

- .2 Indicate dimensions, profiles, attachment methods, schedule of wall elevations, trim and closure pieces, soffits, metal furring, and related work.

Part 2 Products

2.1 Aluminum Cladding Components

- .1 Soffit: to CAN/CGSB-93.2, Type B, Class [1] [2]:
 - .1 Colour: clear anodized
 - .2 Profile: flat sheet 'V' crimped for stiffness, vented, preformed with elongated slits and small perforations, insect screen cover at vents.
 - .1 Pattern: plain

2.2 Steel Cladding and Components

- .1 Strip siding: to CGSB 93.4, Type A vertical, profile, colour and thickness to match existing
- .2 Fascia facings and exposed trim: to CGSB 93.4, profile, colour and thickness to match existing

2.3 Accessories

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour and gloss as cladding, with fastener holes pre-punched.

2.4 Fasteners

- .1 Nails: to CSA B111. Screws to ANSI B18.6.4.

2.5 Caulking

- .1 Sealants: See 07900

2.6 Sheathing Paper

- .1 Exterior wall sheathing paper: to CAN2-51.32, spun-bound olefin type
 - .1 Acceptable Material: Tyvec Commercial

Part 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 by stapling lapping edges 150 mm.

- .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.
- .7 Caulk junctions with adjoining work with sealant. Do work in accordance with Section [07900 - Joint Sealers].

END OF SECTION

Part 1 General

1.1 Related Work

- .1 Metal Flashing and Trim: Section 07620.
- .2 Prefabricated roof expansion joints: Section 07712
- .3 Joint Sealers: Section 07900.

1.2 References

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C 36-95b, Specification for Gypsum Wallboard.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
 - .2 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
 - .3 CGSB 37-GP-15M-76, Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing.
 - .4 CGSB 37-GP-19M-76, Cement, Plastic, Cutback Tar.
 - .5 CAN/CGSB-37.29-M89, Rubber-Asphalt Sealing Compound.
 - .6 CGSB 37-GP-56M-80, Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
 - .7 CAN/CGSB-51.20-M87 Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .3 Canadian Standards Association (CSA)
 - .1 CSA A123.4-[M1992], Bitumen for Use in Construction of Built-Up Roof Coverings and Dampproofing and Waterproofing Systems.
 - .2 CSA A231.1-[1972], Precast Concrete Paving Slabs.
 - .3 CAN/CSA-A247-[M86], Insulating Fibreboard.
 - .4 CSA A284-[1976], Mineral Aggregate Thermal Roof Insulation.
 - .5 CSA O121-[M1978], Douglas Fir Plywood.
 - .6 CSA O151-[M1978], Canadian Softwood Plywood.

1.3 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Indicate flashing, control joints, tapered insulation details.
- .3 Provide layout for tapered insulation.

1.4 Storage and Handling

- .1 Provide and maintain dry, off-ground weatherproof storage.
- .2 Store rolls of felt and membrane in upright position. Store membrane rolls with selvage edge up.
- .3 Remove only in quantities required for same day use.
- .4 Place plywood runways over work to enable movement of material and other traffic.
- .5 Store sealants at +5°C minimum.
- .6 Store insulation protected from daylight and weather and deleterious materials.

1.5 Environmental Requirements

- .1 Do not install roofing when temperature remains below -18°C for torch application, or -10°C to manufacturers' recommendations for mop application.
- .2 Minimum temperature for solvent-based adhesive is -5°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.

1.6 Protection

- .1 Fire Extinguishers: maintain one stored pressure rechargeable type with hose and shut-off nozzle, ULC labeled for A, B and C class protection.
- .2 Maintain fire watch for 1 hour after each day's roofing operations cease.

1.7 Warranty

- .1 For the Work of this Section 07550 - Modified Bituminous Roofing, the 12 months warranty period prescribed in General Conditions "C" is extended to 24 months.
- .2 Contractor hereby warrants that modified bituminous roofing and membrane flashings will stay in place and remain leakproof in accordance with General Conditions, but for two years.

1.8 Compatibility

- .1 Compatibility between components of roofing system is essential. Provide written declaration to Contract Administrator stating that materials and components, as assembled in system, meet this requirement.

1.9 Quality Assurance

- .1 Submit laboratory test reports in accordance with Section 01450 - Quality Control.

Part 2 Products

2.1 Deck Covering

- .1 Gypsum board sheathing: to ASTM C 36 Standard 12.7 mm thick.
- .2 Sand: natural silica sand passing 1-18 mm sieve.

2.2 Deck Primer

- .1 Asphalt primer: to CGSB 37-GP-9Ma.

2.3 Vapour Retarder

- .1 Base sheet vapour retarder: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer glass reinforcement, weighing 100 g/m^2 .

2.4 Membrane

- .1 Base sheet: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer glass reinforcement, weighing 180 g/m^2 .
 - .1 Type 1, [fully adhered] [partially attached].
- .2 Cap sheet: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer glass reinforcement, weighing 250 g/m^2 .
 - .1 Type 1, [fully adhered] [partially attached].

2.5 Bitumen

- .1 Asphalt: to CSA A123.4, Type [2] [3].

2.6 Polystyrene Insulation

- .1 To CAN/CGSB-51.20, Type 4, thickness as indicated, square edges. Only polystyrene insulations listed on CGSB Qualified Products List (51 GP Series) are acceptable for use on this project.

2.7 Sealers

- .1 Plastic cement: asphalt, to CAN/CGSB-37.5 coal tar, to CGSB 37-GP-19M.
- .2 Sealing compound: to CAN/CGSB-37.29, rubber asphalt type.

2.8 Fasteners

- .1 Covering to steel deck: No. 10 flat head, self tapping, Type A or AB, cadmium plated screws to CSA B35.3.
- .2 Insulation to deck: fasteners and plates must meet Factory Mutual 4470 Standard for wind uplift and corrosion resistance.
- .3 -slip finish with [51] mm plain margin around perimeter].

2.9 Paver Pedestals

- .1 Pedestals and levelling plates made of high density polyethylene with integral spacer ribs on upper surface.

Part 3 Execution

3.1 Workmanship

- .1 Do roofing work in accordance with applicable, standard in Canadian Roofing Contractors Association (CRCA) Roofing Specifications Manual .Do priming for asphalt roofing in accordance with CGSB 37-GP-15M.

3.2 Protection

- .1 Cover walls and adjacent work where materials hoisted or used.
- .2 Use warning signs and barriers. Maintain in good order until completion of work.
- .3 Clean off drips and smears of bituminous material immediately.
- .4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.
- .5 Protect roof from traffic and damage. Comply with precautions deemed necessary by [Contract Administrator] [Consultant].
- .6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed work and materials out of storage.

3.3 Examination of Roof Decks

- .1 Examine roof decks and immediately inform Contract Administrator.
- .2 Prior to commencement of work ensure:
 - .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris.
 - .2 Curbs have been built.
 - .3 Roof drains have been installed at proper elevations relative to finished roof surface.
 - .4 Plywood and lumber nailer plates have been installed to deck, walls and parapets as indicated.

3.4 Deck Covering

- .1 Mechanically fasten to steel deck with screws spaced 400 mm o/c each way.
- .2 Place with long axis of each sheet transverse to steel deck ribs, with end joints staggered and fully supported on ribs.

3.5 Vapour Retarder (Concrete/Gypsum Board/Plywood Deck)

- .1 Embed vapour retarder in hot bitumen spread at rate of 1.2 kg/m².

3.6 Exposed Membrane Roofing Application

- .1 Insulation: fully adhered, adhesive application.
 - .1 Adhere insulation to [steel deck] [laminated vapour barrier] using solvent-based adhesive.
 - .2 Place boards in parallel rows with ends staggered, and in firm contact with one another.
 - .3 Cut end pieces to suit.
- .2 Insulation: fully adhered, bitumen application.
 - .1 Embed insulation in 1 to 1.5 kg/m² mopping of bitumen.
 - .2 Place boards in parallel rows with ends staggered, and in firm contact with one another.
 - .3 Cut end pieces to suit.
- .3 Tapered insulation application.
 - .1 Mop insulation to vapour retarder [and top layer of insulation to bottom layer] with hot asphalt at rate of 1 kg/m².
 - .2 Install tapered insulation as second insulation layer, in accordance with shop drawings. Stagger joints between layers 150 mm minimum.
- .4 Base sheet application.
 - .1 Starting at low point of roof, perpendicular to slope, unroll base sheet, align and reroll from both ends.
 - .2 Unroll and embed base sheet in uniform coating of asphalt applied at rate of 1.2 kg/m², at 230°C.
 - .3 Unroll and torch base sheet onto substrate taking care not to burn membrane or its reinforcement or substrate.
 - .4 Lap sheets 75 mm minimum for side and 150 mm minimum for end laps.
 - .5 Application to be free of blisters, wrinkles and fishmouths.
- .5 Cap sheet application.
 - .1 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends.
 - .2 Unroll and embed cap sheet in uniform coating of asphalt applied at rate of 1.2 kg/m², EVT at point of contact.
 - .3 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement.
 - .4 Lap sheets 75 mm minimum for side laps and 150 mm minimum for end laps. Offset joints in cap sheet 300 mm minimum from those in base sheet.
 - .5 Application to be free of blisters, fishmouths and wrinkles.
 - .6 Do membrane application in accordance with manufacturer's recommendations.

- .6 Flashings.
 - .1 Complete installation of flashing base sheet stripping prior to installing membrane cap sheet.
 - .2 Torch base and cap sheet onto substrate in 1 metre wide strips.
 - .3 Lap flashing base sheet to membrane base sheet minimum 150 mm and seal by mopping or torch welding.
 - .4 Lap flashing cap sheet to membrane cap sheet 250 mm minimum and torch weld.
 - .5 Provide 75 mm minimum side lap and seal.
 - .6 Properly secure flashings to their support, without sags, blisters, fishmouths or wrinkles.
 - .7 Do work in accordance with manufacturer's recommendations.
- .7 Roof penetrations.
 - .1 Install roof drain pans, vent stack covers and other roof penetration flashings and seal to membrane in accordance with the manufacturer's recommendations and details.

3.7 Walkways

- .1 Install walkway concrete paving slabs as indicated.

3.8 Field Quality Control

- .1 Inspection and testing of roofing application will be carried out by testing laboratory designated by Contract Administrator.
- .2 Contract Administrator] will pay for tests as specified in Section 01450 - Quality Control.
- .3 Inspection and testing of roofing application will be carried out by testing laboratory designated by Owner.
- .4 Costs of tests will be paid by Owner.

END OF SECTION

Part 1 General

1.1 Related Sections

- .1 Section 01330 - Submittal Procedures.

1.2 References

- .1 The Aluminum Association Inc. (AA)
 - .1 Aluminum Sheet Metal Work in Building Construction-2000.
 - .2 AA DAF45-[97], Designation System for Aluminum Finishes.
- .2 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A167-[99], Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A240/A240M-02, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - .3 ASTM A591/A591M-98, Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Applications.
 - .4 ASTM A653/A653M-[01a], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM A792/A792M-[02], Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .6 ASTM B32-[00], Standard Specification for Solder Metal.
- .3 Canadian Roofing Contractors Association (CRCA)
 - .1 Roofing Specifications Manual 1997.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.
 - .2 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
 - .3 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

1.3 Samples

- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Submit 50 x 50 mm samples of each type of sheet metal material, colour and finish.

1.4 Waste Management and Disposal

- .1 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .2 Place materials defined as hazardous or toxic in designated containers.

- .3 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .4 Divert unused metal materials from landfill to metal recycling facility as approved by Contract Administrator.
- .5 Unused paint and sealant material must be disposed of at an official hazardous material collections site as approved by Contract Administrator.
- .6 Unused paint and 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.
- .7 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 Products

2.1 Sheet Metal Materials

- .1 Zinc coated steel sheet, thickness as indicated, commercial quality to ASTM A653/A653M, with [Z275] designation zinc coating.

2.2 Prefinished Steel Sheet

- .1 Prefinished steel with factory applied polyvinylidene fluoride.
 - .1 Colour selected by Consultant from manufacturer's standard range.
 - .2 Specular gloss: 30 units +/- in accordance with ASTM D523.
 - .3 Coating thickness: not less than 22 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 D822 as follows:
 - .1 Outdoor exposure period [2500] hours.
 - .2 Humidity resistance exposure period [5000] hours.
- .2 Prefinished steel with factory applied polyvinyl chloride.
 - .1 Colour selected by Consultant from manufacturer's standard range.
 - .2 Specular gloss: 30]units +/- 5 in accordance with ASTM D523.
 - .3 Coating thickness: not less than 200 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 D822 as follows:
 - .1 Outdoor exposure period 5000 hours.
 - .2 Humidity resistance exposure period 5000 hours.
- .3 Prefinished steel with factory applied silicone modified polyester.
 - .1 Class [F1S] [F2S].
 - .2 Colour selected by Consultant from manufacturer's standard range.
 - .3 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.
 - .4 Coating thickness: not less than 20 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 1000 hours.
 - .2 Humidity resistance exposure period 1000 hours.

2.3 Prefinished Aluminum Sheet

- .1 Finish: factory applied coating to CAN/CGSB-93.1 supplemented and amended as follows:
 - .1 Colour selected by Consultant from manufacturer's standard range.
 - .2 Specular gloss: [___] units.
 - .3 Coating thickness: not less than 20 micrometres.
 - .1 Outdoor exposure period 5000 hours.
 - .2 Humidity resistance exposure period 5000 hours.
- .2 Thickness specified for prefinished aluminum sheet applies to base metal.

2.4 Accessories

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Underlay for metal flashing :
- .4 Sealants: [___].
- .5 Cleats: of same material, and temper as sheet metal, minimum [50] mm wide. Thickness [[___] mm] [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 Solder: to ASTM B32, alloy composition Sn [___].
- .9 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.
- .10 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] [as indicated].
- .2 Fabricate aluminum flashings and other sheet aluminum work in accordance with AA-Aluminum Sheet Metal Work in Building Construction.

- .3 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .4 Hem exposed edges on underside 12 mm. 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.
- .6 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.6 Metal Flashings

- .1 Form flashings, copings and fascias to profiles indicated of [____]mm thick [[galvanized] [prefinished] [weathering] steel] [[mill finish] [anodized] [prefinished] aluminum] [copper] [stainless steel].

2.7 Pans

- .1 Form pans to receive roofing plastic from [[____] mm thick] [[____] kg/m²] [galvanized] [prefinished] steel [aluminum] [copper] [stainless steel] sheet metal with minimum 75 mm upstand above finished roof and [100] mm continuous flanges with no open corners. [Solder] [Rivet] joints. Make pans minimum 50 mm wider than member passing through roof membrane.

2.8 Reglets and Cap Flashings

- .1 Form [[recessed] [surface mounted] reglets] [metal cap flashing] of [[____] mm thick] [[____] kg/m²] [____] sheet metal [to be built-in [concrete] [masonry] work] for base flashings [as detailed] [in accordance with CRCA FL series details, FL [____]]. Provide slotted fixing holes and steel/plastic washer fasteners. [Cover face and ends with plastic tape].

2.9 Eaves Troughs and Downpipes

- .1 Form eaves troughs and downpipes from [[____] mm thick] [[____] kg/m²] [[galvanized] [prefinished] steel] [aluminum] [copper] [stainless steel] sheet metal [extruded vinyl] [vinyl].
- .2 Sizes and profiles [as indicated].
- .3 Provide goosenecks, [outlets], strainer baskets and necessary fastenings.
- .4 Form [600 x 600] mm splash pans from [[____] mm thick] [[____] kg/m²] [[galvanized] [prefinished] steel] [aluminum] [copper] [stainless steel] sheet metal [vinyl].

2.10 Scuppers

- .1 Form scuppers from [[____] mm thick] [[____]kg/m²] [[galvanized] [prefinished] steel] [aluminum] [copper] [stainless steel] sheet metal [vinyl].
- .2 Sizes and profiles [as indicated].

- .3 Provide necessary fastenings.
- .4 Form [600 x 600] mm splash pans from [____] mm thick [[____] kg/m²] [[galvanized] [prefinished] steel] [[aluminum] [copper] [stainless steel] sheet metal] [vinyl].

2.11 Aluminum Finishes

- .1 Finish exposed surfaces of aluminum components in accordance with AA DAF45.
 - .1 As fabricated or mill finish: designation AA-[____].
 - .2 Clear anodic finish: designation AA-[____].
 - .3 Integral colour anodic finish: designation AA-[____], [____] colour [to match [Contract Administrator's] [Consultant's] sample].
 - .4 Impregnated colour anodic finish: designation AA-[____], [____] colour [to match [Contract Administrator's] [Consultant's] sample].
 - .5 Electrolytically deposited colour anodic finish: designation AA- [____], [____] colour [to match [Contract Administrator's] [Consultant's] sample].
- .2 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative shall meet requirements of CAN/CSA-A440/A440.1, for coating Classes 1, 2 and 3 respectively.

Part 3 Execution

3.1 Installation

- .1 Install sheet metal work [in accordance with] [CRCA FL series details, FL [____]] [Aluminum Sheet Metal Work in Building Construction] [____] [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] [standing seams] 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 [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.
- .10 Install pans, where shown around items projecting through roof membrane.

3.2 Eaves Troughs and Downpipes

- .1 Install eaves troughs and secure to building at [750] mm on centre with eaves trough spikes through spacer ferrules. Slope eaves troughs to downpipes as indicated. [Solder] [Seal] joints watertight.
- .2 Install downpipes and provide goosenecks back to wall. Secure downpipes to wall with straps at [1800] mm on centre; minimum two straps per downpipe. [Connect downpipes to drainage system and seal joint with plastic cement].
- .3 Install splash pans as indicated.

3.3 Scuppers

- .1 Install scuppers as indicated.

END OF SECTION

Part 1 General

1.1 Related Work

- .1 Wood blocking Section 06101 Rough Carpentry Short Form
- .2 Modified Bituminous Roofing: Section 07550
- .3 Metal flashings: Section 07620 – Sheet Metal Flashing and Trim.

1.2 References

- .1 CSA B111-[1974], Wire Nails, Spikes and Staples.

1.3 Design

- .1 Design prefabricated roof expansion joints to maintain soundness of roofing membrane and protect building roof slab expansion joints from weather and moisture infiltration.

1.4 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Indicate size and description of components, attachment devices, and construction details.

1.5 Samples

- .1 Submit samples in accordance with Section 01330 - Submittal Procedures.
- .2 Submit 500 mm long sample of expansion joint complete with attachments, fastened to plywood backing to show joint details and end termination (end cap) details.

Part 2 Products

2.1 Materials

- .1 Exterior cover: of 1.6 mm thick aluminum with joint width of 13 mm, for roof to roof construction, preformed end caps
- .2 Cover insulation: closed cell flexible foam of polyurethane.
- .3 Bond adhesive: type as recommended by product manufacturer.
- .4 Roof nails: standard type to CSA B111.
- .5 Anchors: manufacturer's standard to suit roof deck or curb.

2.2 Fabrication

- .1 Factory assemble, preform crown shape with prefabricated intersections and splicings.

Part 3 Execution

3.1 Installation

- .1 Ensure roofing [felts] [membrane] or other weathering surfaces are applied over wood nailers as indicated.
- .2 Ensure continuity of building envelope air barrier and vapour retarder systems.
- .3 Apply adhesive for joining expansion joints cover in [cant] [curb and cant] construction.
- .4 Fasten expansion joint cover strip as indicated at 400 mm oc.

END OF SECTION

Part 1 General

1.1 Related Work

- .1 Fire stopping and smoke seals within mechanical assemblies (i.e inside ducts, dampers) and electrical assemblies (i.e. inside cable trays) are specified in Division 15 and 16 respectively.

1.2 References

- .1 Underwriter's Laboratories of Canada (ULC)
 - .1 ULC-S115-1995, Fire Tests of Firestop Systems.

1.3 Samples

- .1 Submit samples in accordance with Section 01330 - Submittal Procedures.
- .2 Submit duplicate 300 x 300 mm samples showing actual firestop material proposed for project.

1.4 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
- .2 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.

1.5 Product Data

- .1 Submit product data in accordance with Section 01330 - Submittal Procedures.
- .2 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.

1.6 Waste Management and Disposal

- .1 Separate and recycle waste materials.
- .2 Collect and separate plastic, paper packaging and corrugated.

Part 2 Products

2.1 Materials

- .1 Fire stopping and smoke seal systems: in accordance with ULC-S115.
 - .1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ULC-S115 and not to exceed opening sizes for which they are intended.
 - .2 Firestop system rating: to suit application.
- .2 Service penetration assemblies: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.
- .3 Service penetration firestop components: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.13 and ULC Guide No.40 U19.15 under the Label Service of ULC.
- .4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
- .5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .10 Sealants for vertical joints: non-sagging.

Part 3 Execution

3.1 Preparation

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.2 Installation

- .1 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.
- .2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
- .3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
- .4 Tool or trowel exposed surfaces to a neat finish.
- .5 Remove excess compound promptly as work progresses and upon completion.

3.3 Inspection

- .1 Notify Contract Administrator when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

3.4 Schedule

- .1 Firestop and smoke seal at:
 - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
 - .2 Edge of floor slabs at curtain wall and precast concrete panels.
 - .3 Top of fire-resistance rated masonry and gypsum board partitions.
 - .4 Intersection of fire-resistance rated masonry and gypsum board partitions.
 - .5 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
 - .6 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
 - .7 Openings and sleeves installed for future use through fire separations.
 - .8 Around mechanical and electrical assemblies penetrating fire separations.
 - .9 Rigid ducts: greater than [129 cm²]: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

3.5 Special Requirements

- .1 Location of special requirements for fire stopping and smoke seal materials at openings and penetrations in fire resistant rated assemblies are as shown on drawings.

3.6 Clean Up

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
- .2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Materials, preparation and application for caulking and sealants.
- .2 Text to complete other various Sections containing sealant or caulking specifications, including Section 07550 - Modified Bituminous Roofing.

1.2 RELATED SECTIONS

- .1 Section 01330 - Submittal Procedures.
- .2 Section 01450 - Quality Control].
- .3 Section 01610 - Basic Product Requirements.

1.3 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).
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .5 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 SUBMITTALS

- .1 Submit product data in accordance with Section 01330 - 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 01330 - 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 01330 - Submittal Procedures.
 - .1 Instructions to include installation instructions for each product used.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section [01610 - Basic 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.

1.6 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.

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

2.2 SEALANT MATERIAL DESIGNATIONS

- .1 Polysulfide Two Part.
 - .1 Self-Leveling to CAN/CGSB-19.24, Type 1, Class B, colour as indicated.
- .2 Polysulfide One Part.
 - .1 Self-Leveling to CAN/CGSB-19.13, [MC-1-40-B-N] [MC-1-25-B-N], colour indicated.
 - .2 Urethanes Two Part.
- .3 Urethanes Two Part.
 - .1 Non-Sag to CAN/CGSB-19.24, Type 2, Class B, colour indicated..
- .4 Urethanes One Part.
 - .1 Self-Leveling to CAN/CGSB-19.13, Type 1, colour indicated..
- .5 Silicones One Part.
 - .1 To CAN/CGSB-19.13.
- .6 Acrylics One Part.
 - .1 To CGSB 19-GP-5M.
- .7 Acrylic Latex One Part.
 - .1 To CAN/CGSB-19.17.
- .8 Acoustical Sealant.
 - .1 To [ASTM C919].
- .9 Butyl.
 - .1 To CGSB 19-GP-14M.

- .10 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 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/m³ 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.

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.

Part 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 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.

3.5 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.
- .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