

PART 1 - GENERAL

1.1 RELATED SECTIONS .1 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES .1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB 37-GP-5M - Standard for Asphalt Plastic Cement.
.2 CGSB 37-GP-9Ma, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
.3 CGSB 37-GP-56M, Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

1.3 ACTION AND INFORMATIONAL SUBMITTALS .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
.2 Product Data:
.1 Provide most recent technical waterproofing components data sheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations. Indicate VOC content for:
.1 Primers.
.2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS).
.1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.
.3 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.

1.4 DELIVERY, STORAGE, AND HANDLING .1 Provide and maintain dry, off-ground weatherproof storage.
.2 Store rolls of felt and membrane in upright position.
.1 Store membrane rolls with selvage up.

- | | | |
|---|----|--|
| 1.4 DELIVERY,
STORAGE,
AND HANDLING
(Cont'd) | .3 | Remove only in quantities required for same day use. |
| | .4 | Store sealants at +5 degrees C minimum. |
| | .5 | Handle waterproofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance. |
| | .6 | Store and manage hazardous materials in accordance with Section 01 35 29 - Health and Safety Requirements. |

- | | | |
|---------------------|----|--|
| 1.5 SITE CONDITIONS | .1 | Ambient Conditions |
| | | .1 Minimum temperature for solvent-based adhesive is -5 degrees C. |
| | .2 | Install waterproofing on dry substrate, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into waterproofing system. |

- | | | |
|--------------|----|--|
| 1.6 WARRANTY | .1 | For Work of this Section 07 13 52 - Modified Bituminous Sheet Waterproofing, 12 months warranty period is extended to 24 months. |
|--------------|----|--|

PART 2 - PRODUCTS

- | | | |
|-----------------------------|----|--|
| 2.1 PERFORMANCE
CRITERIA | .1 | Compatibility between components of waterproofing system is essential. Provide written declaration to DCC Representative stating that materials and components, as assembled in system, meet this requirement. |
|-----------------------------|----|--|

- | | | |
|------------|----|---|
| 2.2 PRIMER | .1 | Solvent-based, as recommended by sheet membrane manufacturer. |
|------------|----|---|

- | | | |
|--------------|----|---|
| 2.3 MEMBRANE | .1 | Vertical Surface Applications: |
| | | .1 Prefabricated composite sheet membrane: comprised of rubberized asphalt integrally bonded to a film of high density cross laminated polyethylene membranes maintaining a |

2.3 MEMBRANE
(Cont'd)

- .1 (Cont'd)
 - .1 (Cont'd)
minimum thickness of 1.5mm (60 mils), provided in rolls with lap lines clearly marked.
 - .2 The membrane shall incorporate a 6 mm edge bead of rubberized asphalt running continuously along both sides of the roll.
 - .3 Acceptable materials:
 - .1 Blueskin WP200 by Bakor.
 - .2 Bituthene 3000, by W.R. Grace.
 - .3 Colphene 1500, by Soprema.
 - .4 Carlisle QSC-701, by Carlisle Syntec.
 - .5 Aquabarrier FP by IKO Industries.
 - .2 Horizontal sub-slab surface applications:
 - .1 Pre-applied, integrally bonded sheet waterproofing membrane, 1.2 mm nominal thickness, composite sheet membrane comprised of 0.8 mm high-density polyethylene (HDPE) film and specially formulated synthetic adhesive layers.
 - .1 Peel adhesion to concrete 880 N/m
 - .2 Permeance to water vapour transmission: 0.6 ng/(Pa P s P m2)
 - .2 The membrane shall form an integral and permanent bond to poured concrete to prevent water migration at the interface of the membrane and structural concrete.
 - .3 Mastics: at termination and projections as recommended and supplied by membrane manufacturer.
 - .4 Reinforcement: at cracks, inside and outside corners and penetrations: as recommended and supplied by membrane manufacturer.
 - .5 Termination bar: provide and install recommended by manufacturer.

2.4 COMPATIBILITY

- .1 Ensure that all materials used are compatible.
- .2 Provide proof of compatibility.

PART 3 - EXECUTION

- 3.1 PREPARATION
- .1 Inspect mud slabs, walls and all related surfaces and prepare and prime surfaces to receive prefabricated composite sheet membrane waterproofing material.
 - .2 Concrete substrates shall be smooth finished and monolithic. Fill gaps or voids greater than 12 mm.
 - .3 Do not proceed with work on surfaces not in accordance with manufacturer's recommendations.
- 3.2 APPLICATION
- .1 Apply membrane to surfaces fully adhered in accordance with membrane manufacturer's instructions.
 - .2 Where membrane is applied over mud slabs, lap membrane from walls above over membrane on mud slab by 200mm minimum. Seal together completely.
- 3.3 FIELD QUALITY CONTROL
- .1 Inspection of waterproofing application will be carried out by the DCC Representative.
 - .2 Give a minimum of 48 hours notice of when waterproofing is to be inspected.
- 3.4 PROTECTION OF COMPLETED WORK
- .1 Ensure membrane is undamaged before application of protection board.
 - .2 Apply protection board to cover membrane at all locations, except at underside of pits where concrete is cast on top of membrane.
- 3.5 SCHEDULE
- .1 Membrane waterproofing is required at:
 - .1 All pits, utility trenches and SIT trenches internal to the building (bottom and sides).

PART 1 - GENERAL

- | | | |
|--|----|--|
| <u>1.1 RELATED SECTIONS</u> | .1 | Section 03 30 00 - Cast-in-Place Concrete. |
| | .2 | Section 04 05 00 - Common Work Results for Masonry. |
| | .3 | Section 07 26 00 - Air Barriers/Vapour Retarders. |
| <u>1.2 REFERENCES</u> | .1 | American Society for Testing and Materials International, (ASTM).
.1 ASTM E96/E96M-05, Test Methods for Water Vapour Transmission of Materials. |
| | .2 | Canadian General Standards Board (CGSB).
.1 CGSB 71-GP-24M, Adhesive, Flexible, for Bonding Cellular polystyrene Insulation. |
| | .3 | Underwriters Laboratories of Canada (ULC).
.1 CAN/ULC-S701-11, Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
.2 CAN/ULC-S702-09-AM1, Thermal Insulation, Mineral Fibre, for Buildings. |
| <u>1.3 SUBMITTALS</u> | .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. |
| <u>1.4 WASTE MANAGEMENT AND DISPOSAL</u> | .1 | Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System. |
| | .2 | Remove from site and dispose of packaging materials at appropriate recycling facilities. |

PART 2 - PRODUCTS

- 2.1 INSULATION
- .1 Extruded polystyrene (XPS): Regular Density: to CAN/ULC-S701; for vertical applications:
 - .1 Type: 4.
 - .2 Thickness: 25 mm or 50mm on drawings as indicated.
 - .3 Size: to suit.
 - .4 Edges: shiplapped.
 - .5 Compressive Strength: 210 kPa.
 - .6 Acceptable material:
 - .1 Celfort 300
 - .2 Styrofoam SM
 - .3 Trueboard EPS Type 2
 - .2 Polyethylene vapour retarder: to CAN/CGSB-51.34, 0.15mm, 6 mil thick.
- 2.2 ADHESIVE
- .1 Adhesive (for polystyrene): to CGSB 71-GP-24.
 - .1 As recommended by board manufacturer.
 - .2 VOC emission: zero.

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 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints.

- 3.2 WORKMANSHIP .4 (Cont'd)
 (Cont'd)
- .5 Do not enclose or cover insulation until it
 has been inspected and approved by
 Departmental Representative.
- 3.3 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.
- 3.4 CLEANING .1 Upon completion of installation, remove
 surplus materials, rubbish, tools and
 equipment barriers.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 06 10 00 - Rough Carpentry.
- .3 Section 09 21 16 - Gypsum Board Assemblies.
- .4 Section 09 22 16 - Non-Structural Metal Framing.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C423-09a Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - .2 ASTM C665-06, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - .3 ASTM C1320-10, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
 - .4 ASTM E136-12 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees F (unfaced).
- .2 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S702-09-AM1, 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 01 33 00 - Submittal Procedures.
- .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 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29 - Health and Safety Requirements.

PART 2 - PRODUCTS

2.1 BATT INSULATION

- .1 Batt mineral fibre: to CAN/ULC S702:
 - .1 Type: 1.
 - .2 Formaldehyde free, less than 0.022 ppm. Provide testing results.
 - .3 25% minimum recycled content.
 - .4 Thickness: to suit partition thickness, full stud thickness.

2.2 ACOUSTIC
BLANKET INSULATION

- .1 Blanket Glass Fibre: to CAN/ULC S102:
 - .1 Type I: for exterior stud walls, friction fit, 139mm R21.0, widths to suit stud spacing. Unfaced thermal batt insulation complying with ASTM C 665 and ASTM E136.
 - .2 Surface burning characteristics:
 - .1 Unfaced insulation.
 - .2 Maximum flame spread: 10
 - .3 Maximum smoke developed: 10.
 - .3 Combustion characteristics: unfaced insulation to pass ASTM E136 test.
 - .4 Dimensional stability: linear stability less than 0.1%.
 - .5 Acceptable material:
 - .1 Owens Corning unfaced fibreglass batts.
- .2 Batt mineral fibre acoustic insulation:
 - .1 Mineral fibre with average density of 2.50 #/c.f., or fibreglass batts.
 - .2 Formaldehyde free.
 - .3 Thickness as shown on drawings.

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 INSTALLATION:
BATT INSULATION

- .1 Install insulation to maintain continuity of thermal protection to building elements and spaces.
- .2 Fit insulation firmly between studs and 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 (3") from heat emitting devices such as recessed light fixtures.
- .5 Do not enclose insulation until it has been inspected and approved by Departmental Representative.

3.3 INSTALLATION:
ACOUSTIC BLANKET
INSULATION

- .1 Coordinate installation with other trades including painting, mechanical and electrical.
- .2 Fit blankets over conduit, cutting around hangers, junction boxes, devices, valves, etc., as required, leaving them exposed for access.

3.4 CLEANING

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

PART 1 - GENERAL

- | | | |
|------------------------------|----|--|
| <u>1.1 RELATED SECTIONS</u> | .1 | Materials and installation methods providing primary air/vapour barrier materials and assemblies. |
| | .2 | Air/vapour barrier materials to provide continuous seal between components of building envelope and building penetrations. |
| | .3 | Section 03 30 00 - Cast-in-Place Concrete: vapour barrier for slabs on grade. |
| | .4 | Section 06 10 00 - Rough Carpentry: vapour barrier for wood stud walls. |
| | .5 | Section 07 92 00 - Joint Sealing. |
| | .6 | Section 07 27 -0 - Air Barrier Foam Sealant. |
| | .7 | Section 07 31 30 - Wood Shingles. |
| <u>1.2 REFERENCES</u> | .1 | Canadian General Standards Board (CGSB)
.1 CAN/CGSB-19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing. |
| <u>1.3 SUBMITTALS</u> | .1 | Submit manufacturer's product data sheets in accordance with Section 01 33 00 - Submittal Procedures. |
| | .2 | Submit manufacturer's installation instructions in accordance with Section 01 33 00 - Submittal Procedures. |
| <u>1.4 QUALITY ASSURANCE</u> | .1 | Perform Work in accordance with the requirements of the manufacturer of the specified products. |
| | .2 | Maintain one copy of documents on site. |
-

- | | |
|---|--|
| <u>1.5 DELIVERY,
STORAGE
AND HANDLING</u> | <ul style="list-style-type: none">.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..3 Avoid spillage..4 Clean spills and leave area as it was prior to spill. |
| <u>1.6 WASTE
MANAGEMENT
AND DISPOSAL</u> | <ul style="list-style-type: none">.1 Separate and recycle waste materials..2 Place materials defined as hazardous or toxic waste in designated containers..3 Ensure emptied containers are sealed and stored safely for disposal away from children. |
| <u>1.7 PROJECT
ENVIRONMENTAL
REQUIREMENTS</u> | <ul style="list-style-type: none">.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. |
| <u>1.8 SEQUENCING</u> | <ul style="list-style-type: none">.1 Sequence work to permit installation of materials in conjunction with related materials and seals. |
-

PART 2 - PRODUCTS

2.1 SHEET
MATERIALS

- .1 Sheet Seal Type 1: Combination air barrier/vapour barrier self-Adhesive bitumin laminated to high-density polyethylene film, nominal total thickness of 40mm.
 - .1 Acceptable material:
 - .1 W.R. Grace - Perm-A-Barrier.
 - .2 Bakor - Blueskin SA.
 - .3 IKO - Aquabarrier AVB
 - .4 Soprema Stick 1.1mm.
 - .2 Primer and mastic sealant as recommended by the membrane manufacturer. Primer to be solvent base type.
- .2 Sheet Seal Type 2: Weather resistant, breathable air barrier membrane - spun bonded olefin, non-woven and non-perforated.

2.2 SEALANTS

- .1 Sealant Type A: CAN/CGSB-19.13M, single component, chemical curing, capable of continuous water immersion, non-sagging type, Shore "A" Hardness Range of 20 to 35 for use with type 2 air barrier membrane.
- .2 Primer: Recommended by sealant manufacturer
Appropriate to application.
- .3 Substrate Cleaner: Non-corrosive type recommended by sealant manufacturer compatible with adjacent materials.

2.3 ACCESSORIES
FOR TYPE 2
AIR BARRIER

- .1 Approved contractors sheathing tape evaluated by CCMC.
- .2 Fasteners for wood - nails with large plastic washer heads.

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 Departmental Representative 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 Type 1 self-adhesive membrane in accordance with manufacturer's instructions.

3.3 INSTALLATION

- .1 Install materials in accordance with manufacturer's instructions.
- .2 Adhere sheet seal Type 1 to materials after priming the surface. Caulk laps with mastic approved by membrane manufacturer.
- .3 Install sheet seal Type 2 over all wood framed walls which are sheathed with plywood or existing wood shingles.

3.3 INSTALLATION
(Cont'd)

- .4 All laps are to be taped with CCMC approved sheathing tape.
- .5 Use only plastic washer nails to secure membrane, either for temporary fastening or permanent fastening.
- .6 Staples are not to be used to secure the membrane. There is a great danger that the staple gun or hammer tacker will cut holes in the membrane.
- .7 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.
- .2 Do not permit adjacent work to damage work of this section.
- .3 Ensure finished Work is protected from climatic conditions.

3.5 SCHEDULES

- .1 Roof vapour barrier to lap over wall membrane with sheet seal Type 1.
- .2 Wall air barrier over Plywood sheathed wood stud walls:
 - .1 To be sheet seal type 2.
 - .2 Cut and return this membrane into all window openings on jambs and sill..
 - .3 Flash the bottom of the rough window opening with DuPont Flex Wrap and extend 8" up jambs.
 - .4 Caulk rough opening of jambs and heads. Position caulk such that window flange will contact when installed.
 - .5 Install window as per manufacturer's printed instructions.
 - .6 Seal nailing flange at jambs and head with DuPont Straight Flashing.
 - .7 Flip head flap of membrane down and secure with tape.
 - .8 Caulk rear of window to seal frame to inside of rough opening.

3.5 SCHEDULES .2 (Cont'd)
(Cont'd)

.9 Additional instructions:

- .1 Wipe surfaces to remove moisture, dirt, grease and other debris that could interfere with adhesion.
- .2 Apply pressure all the way along the surface to ensure a good bond.
- .3 Remove any wrinkles in the tape. No fishmouths allowed.
- .4 Use mechanical fasteners to temporarily secure the outer edges of the air barrier at the sill bottom corners.

PART 1 - GENERAL

- 1.1 RELATED WORK .1 Section 07 26 00 - Air Barriers.
- .2 Section 08 12 00 - Aluminum Doors.
- .3 Section 08 50 00 - PVC Windows.
- 1.2 REFERENCES .1 CGSB 51-GP-23-92 - Spray-Applied Rigid Polyurethane Cellular Plastic Thermal Insulation.
- 1.3 PROTECTION .1 Ventilate area.
- .2 Protect workers as recommended by insulation manufacturer.
- .3 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Insulation: one component spray polyurethane to CGSB 51-GP-23M.

PART 3 - EXECUTION

- 3.1 APPLICATION .1 Apply insulation to clean surfaces in accordance with manufacturer's printed instructions.
- .2 Apply sprayed foam insulation into space between door, PVC window and the adjacent building components to form a continuous air barrier and to insulate interior of frames. Refer to drawings for locations.

PART 1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Section 01 33 00 - Submittal Procedures.
	.2	Section 07 62 00 - Sheet Metal Flashing and Trim.
<u>1.2 REFERENCES</u>	.1	American Society for Testing and Materials International, (ASTM). .1 ASTM D5116-10, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
	.2	Canadian General Standards Board (CGSB). .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type. .2 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
	.3	Canadian Standards Association (CSA International). .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples. .2 CSA O118.2-M1981(R2002), Eastern White Cedar Shingles. .3 CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document
	.4	Cedar Shake and Shingle Bureau (CSSB). .1 CSSB-97, Cedar Shake and Shingle Grading Rules. .2 CSSB Exterior and Interior Wall Manual for Sidewall Application Details 2002.
<u>1.3 DEFINITIONS</u>	.1	Shingle: tapered slice of wood sawn from block with taper in direction of grain or axial direction.
<u>1.4 SUBMITTALS</u>	.1	Product Data: .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

-
- 1.4 SUBMITTALS
(Cont'd)
-
- .1 Product Data:(Cont'd)
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for caulking materials during application.
 - .2 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit duplicate full size shingles of finish and profile specified.
 - .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
- 1.5 QUALITY
ASSURANCE
-
- .1 Job Mock-up:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .1 Provide 4'-0" x 4'-0" mock-up including components as follows: air barrier, breather.
 - .2 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
 - .3 Locate where directed.
 - .4 Allow 48 hours for inspection of mock-up before proceeding with work.
 - .5 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.
 - .2 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
- 1.6 DELIVERY,
STORAGE
AND HANDLING
-
- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, handle, store and protect materials.
 - .2 Remove only in quantities required for same day use.
-

- | | | |
|--|----|--|
| 1.6 DELIVERY,
STORAGE
AND HANDLING
(Cont'd) | .2 | Storage and Protection:
.1 Provide and maintain dry, off-ground weatherproof storage. |
| 1.7 WASTE
MANAGEMENT
AND DISPOSAL | .1 | As per Section 01 74 21 - Construction/
Demolition Waste Management and Disposal. |
| 1.8 UNUSED
MATERIALS | .1 | Unused shingles remain property of owner. |
| | .2 | Return unused shingles to Departmental Representative. Retain packaging or rewrap shingles to form complete bundles. |
| | .3 | Label packages to identify product, quantity and manufacturer/supplier. |
| | .4 | Deliver and store in location designated by Departmental Representative. |
| 1.9 MAINTENANCE | .1 | Extra Materials:
.1 Provide maintenance materials in accordance with Section 01 77 00 - Closeout Procedures.
.2 Provide information on preservation and restoration of shingles. |

PART 2 - PRODUCTS

- | | | |
|---------------|----|---|
| 2.1 MATERIALS | .1 | Shingles shall be eastern white cedar. They shall be 16" length to match existing exposure, random width, rebuted and re-squared. |
| | .2 | Sheathing paper: Refer to Section 07 26 00 for sheet seal Type 2. |
| | .3 | Nails shall be one of the following:
.1 Hot dipped galvanized for hand driving.
.2 Stainless steel Type 304 or 316 for power driving. |
-

- | | | |
|----------------------------------|----|--|
| <u>2.1 MATERIALS</u>
(Cont'd) | .3 | Nails shall be one of the following:(Cont'd) |
| | .3 | Nails to penetrate wall or over sheathing by 3/4" (19mm). |
| | .4 | Wall breather: 7/16" thick, 39.37" wide, in 8# rolls. Matrix design to have 1.5 channels per inch. |
| | .5 | Building paper - #15 Felt. |

PART 3 - EXECUTION

- | | | |
|--|----|---|
| <u>3.1 MANUFACTURER'S INSTRUCTIONS</u> | .1 | Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets. |
|--|----|---|

- | | | |
|------------------------|----|---|
| <u>3.2 APPLICATION</u> | .1 | Do wood shingle work in accordance with NBC and CSA 0118.2, Appendix C except where indicated otherwise. |
| | .2 | Install shingles over wall breather matrix. |
| | .3 | Space shingles @ 1/8" (3mm). |
| | .4 | Stagger joints minimum of 1-5/8" (40mm) in succeeding courses. Ensure that in any 3 courses no two joints are in alignment. |
| | .5 | Use two nails per shingle. Space nails 3/4" (19mm) from edge and 1" (25mm) above butt line of following course. |
| | .6 | Drive nails flush but do not crush shingles. |

- | | | |
|---------------------------------|----|---|
| <u>3.3 WALL SIDING SHINGLES</u> | .1 | Underlayment: Sheet membrane air/vapour barriers as per Section 07 26 00. |
| | .1 | Install over sheathing. |
| | .2 | Install horizontally and fasten to sheathing as described in Section 07 26 00. |
| | .3 | Install wall breather matrix over underlay in accordance with manufacturer's recommendations. |

- | | | |
|--|----|---|
| <u>3.3 WALL SIDING
SHINGLES
(Cont'd)</u> | .2 | Install shingles using single course method to ensure triple thickness at any given point. At external corners alternate overlap. |
| | .3 | Install stainless steel insect screen at bottom of shingles, as detailed. |
|
<u>3.4 WALL SIDING
SHINGLES</u> | .1 | Underlayment: building paper #15 felt (perforated).
.1 Install over sheathing.
.2 Fasten to sheathing using roofing nails, hand driven. |
| | .2 | Install shingles using single course method to ensure triple thickness at any given point. |
|
<u>3.5 CLEANING</u> | .1 | Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers. |

PART 1 - GENERAL

- | | | |
|-----------------------------|----|--|
| <u>1.1 RELATED SECTIONS</u> | .1 | Section 07 31 30 - Wood Shingles. |
| | .2 | Section 08 50 00 - PVC Windows. |
| <u>1.2 REFERENCES</u> | .1 | ASTM A755/A755M-03(2008), Steel Sheet, Metallic-Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products. |
| | .2 | CSA B111-1974(R2003), Wire Nails, Spikes and Staples. |
| | .3 | Canadian Roofing Contractors Association (CRCA). |
| <u>1.3 SAMPLES</u> | .1 | Submit duplicate 150mm x 150mm samples of sheet metal material, colour and finish. |

PART 2 - PRODUCTS

- | | | |
|------------------------------------|----|--|
| <u>2.1 SHEET METAL MATERIALS</u> | .1 | Galvalume Plus steel sheet: 24 ga. The core will be formed from Grade 230 (33) steel, having a minimum yield stress of 230 Mpa (33 000 psi) and a maximum allowable stress resistance of 144 Mpa (20 625 psi). |
| <u>2.2 PREFINISHED STEEL SHEET</u> | .1 | Prefinished steel with Galvalume Plus. |
| <u>2.3 ACCESSORIES</u> | .1 | Plastic cement: to CGSB 37-GP-5Ma. |
| | .2 | Underlay for metal flashing: No. 15 perforated asphalt felt to CSA A123.3. |
| | .3 | Sealants: Tremco Dymonic. |
| | .4 | Cleats: of same material, and temper as sheet metal, minimum 50mm wide. Thickness 22 ga. |

- 2.3 ACCESSORIES
(Cont'd)
- .5 Fasteners: of same material as sheet metal, to CSA B111, flat head roofing nails of length and thickness suitable for metal flashing application. Colormate screws where exposed.
 - .1 Nails to be hot dipped galvanized.
 - .1 Acceptable manufacturers:
 - .1 Tree Island Industries.
 - .2 Duchesne.
 - .6 Touch-up paint: as recommended by prefinished material manufacturer.

- 2.4 FABRICATION
- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details and as indicated.
 - .2 Form pieces in 2440mm maximum lengths. Make allowance for expansion at joints.
 - .3 Hem exposed edges on underside 13mm. Miter and seal corners with sealant.
 - .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
 - .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- .1 Install sheet metal work in accordance with CRCA FL series details and as detailed.
 - .2 Use concealed fastenings except where approved before installation.
 - .3 Provide underlay under sheet metal. Secure in place and lap joints 4".
 - .4 Lock end joints and caulk with sealant.

PART 1 - GENERAL

- | | | |
|-------------------------|----|---|
| 1.1 RELATED
SECTIONS | .1 | Section 01 33 00 - Submittal Procedures. |
| | .2 | Section 01 74 21 - Construction/Demolition
Waste Management and Disposal. |
| | .3 | Section 01 45 00 - Quality Control. |
| 1.2 REFERENCES | .1 | CAN/ULC-S115-11, Standard Method of Fire
Tests of Firestop Systems. |
| | .2 | Underwriters Laboratories of Canada (ULC) of
Scarborough runs CAN-S115-M under their
designation of UCL-S115-M and publishes the
results in their "Fire Resistance Ratings
Directory" that is updated annually.
Underwriters Laboratories (UL) of Northbrook,
IL runs ASTM E-814 under their designation of
UL 1479 and publishes the results in their
"Fire Resistance Directory" that is updated
annually. UL tests that meet the requirements
of ULC-S115-M are given a culling and are
published by UL in their "Products Certified
for Canada (cUL) Directory. Omega Point
Laboratories runs ASTM E-814 and publishes
the results annually in their "Omega Point
Laboratories Directory". |
| | .3 | Test requirements: UL 2079 Revision 1, "Tests
for Resistance of Building Joint Systems" or
ASTM E1966-07, "Standard test method for Fire
Resistive Joint Systems". These test
requirements provide more guidelines for
testing moving joints than that given in
CAN4-S115-M. UL tests that meet the
requirements of ULC-S115-M are given a cUL
listing and are published by UL in their
"Products Certified for Canada (cUL)
Directory". |
| | .4 | Inspection requirements:ASTM E2174-09,
"Standard Practice for On-site Inspection of
Installed Fire Stops (destructive testing). |

1.2 REFERENCES
(Cont'd)

- .5 International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.
- .6 CAN/ULC-S102-M, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .7 NBC - National Building Code of Canada, latest edition.
- .8 NFPA 101 - Life Safety Code.
- .9 Canadian Electrical Code.

1.3 DEFINITIONS

- .1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.
- .2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.
- .3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

1.4 SYSTEM DESCRIPTION

- .1 Firestopping Materials: In accordance with CAN4-S115M and ASTM E814-09 to achieve a fire protection rating of one (1) hour construction, typical, as indicated.
- .2 Work of this section comprises firestop and smoke seal materials and/or systems to provide closures to fire and smoke at openings, around penetrations, at unpenetrated openings, at projecting or recessed items, and at openings and joints within fire separations and assemblies having a fire-resistance rating, including openings and spaces at perimeter edge conditions.

1.4 SYSTEM DESCRIPTION (Cont'd)	.3	The installed seal shall provide and maintain a fire resistance rating equivalent to the rating of the adjacent floor, wall or other fire separation assembly to the requirements of and as acceptable to the Authorities Having Jurisdiction and to Department Representative.
	.4	Firestopping and smoke seals within mechanical (i.e. inside ducts, dampers) and electrical assemblies (i.e. inside electrical busducts) shall be provided as part of work of Mechanical and Electrical sections respectively. Otherwise, one trade only shall be responsible for all firestopping work on the project including firestopping and smoke seals around the outside of such mechanical and electrical assemblies where they penetrate fire-rated separations.
	.5	If the penetration or substrate is combustible or has the potential to melt then an adequate intumescent component to seal any void created by combustion or melting shall be a component of the system.
1.5 SHOP DRAWINGS	.1	Submit shop drawings in accordance with Section 01 33 00 - 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.
1.6 SUBMITTALS	.1	Submit product data: manufacturer's specifications and technical data for each material including the composition and limitations, documentation of ULC or cUL firestop systems to be used and manufacturer's installation instructions to comply with Section 01 33 00.
	.2	Manufacturer's engineering judgement identification number and drawing details when no ULC or cUL system is available for an application. Engineered judgement must include both project name and contractor's name who will install firestop system as described in drawing.

<u>1.6 SUBMITTALS</u> (Cont'd)	.3	Submit Material Safety Data Sheets provided with product delivered to job site.
-----------------------------------	----	---

<u>1.7 QUALITY ASSURANCE</u>	.1	Manufacturer: Company specializing in manufacturing products of this Section.
	.2	Manufacturer's Obligations: .1 The manufacturer shall play an active role in the installation of their product during the period of this contract. .2 The manufacturer shall be represented at all relevant meetings by a trained technical representative. .3 The technical representative shall be approved by the. Departmental Representative. .4 The project shall be subdivided into "Sectors of Work". .5 A minimum of three field reviews per sector from the Manufacturer's representative must be made prior to and during installation to ensure proper application of systems. .6 After each visit provide a written report to the Departmental Representative within five (5) working days.

<u>1.8 DELIVERY, STORAGE AND HANDLING</u>	.1	Deliver and store materials in a dry, protected area, off ground in original, undamaged, sealed containers with manufacturer's labels and sealed intact, and in accordance with manufacturer's instructions.
	.2	Do not use damaged or expired materials.
	.3	Do not use materials that contain flammable solvents.

<u>1.9 PROJECT/SITE CONDITIONS</u>	.1	Do not apply materials when temperature of substrate material and ambient air is below 5°C.
	.2	Maintain this minimum temperature before, during and for 3 days after installation of materials.

- 1.10 SEQUENCING AND SCHEDULING .1 Sequence work to permit installation of firestopping and smoke seal materials after adjacent work is complete and before closure of spaces.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Firestopping and smoke seal systems: in accordance with ULC-S115 and CAN 4-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: F.
- .2 Smoke seals: materials for use as smoke seals only, with no requirement for a rating, may be approved firestop products or butyl Acoustical Sealant in concealed applications, and permanently elastic, paintable latex acrylic Acoustical Sealant in exposed applications.
- .3 Service penetration assemblies: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.
- .4 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.
- .5 Fire-resistance rating of installed firestopping assembly in accordance with NBC.
- .6 Firestopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal. Do not use cementitious or rigid seal at such openings.
- .7 Firestopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .8 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

2.1 MATERIALS
(Cont'd)

- .9 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .10 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.
- .11 Sealants for vertical joints: non-sagging.
- .12 Acceptable material: subject to compliance with through penetration firestop systems and joint systems listed in the ULC Fire Resistance Directory - Volume III or UL Products Certified for Canada (cUL) Directory, products of the following manufacturers are acceptable:
 - .1 Hilti (Canada) Corp.
 - .2 3M.
 - .3 Nuco.
 - .4 Tremco.

PART 3 - EXECUTION

3.1 MANUFACTURER'S
INSTRUCTIONS

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

3.2 EXAMINATION

- .1 Examine surfaces to receive work of this section and report any defects which may affect the work of this Section.
- .2 Verify that openings are ready to receive the work of this Section.
- .3 Confirm compatibility of surfaces to receive firestopping and smoke seal materials.
- .4 Beginning of installation means acceptance of existing surfaces and substrate.

-
- 3.3 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 firestopping 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.
- 3.4 INSTALLATION
- .1 Install firestopping 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.
- 3.5 FIELD QUALITY CONTROL
- .1 Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
 - .2 Keep areas of work accessible until inspection by applicable code authorities and manufacturer's technical representative.
 - .3 Provide field review services with written reports by manufacturer's technical
-

3.5 FIELD QUALITY CONTROL
(Cont'd)

- .3 (Cont'd)
representative in accordance with Part 1.10
Quality Assurance.
- .4 Inspection of through-penetration
firestopping shall be performed in accordance
with ASTM E 2174-09, "Standard Practice for
On-Site Inspection of Installed Fire Stops" or
other recognized standard.
- .5 Perform under this section patching and
repairing of firestopping caused by cutting or
penetrating of existing firestop systems
already installed by other trades.

3.6 SCHEDULE

- .1 Firestop and smoke seal at:
 - .1 Penetrations through fire-resistance
rated masonry partitions and walls.
 - .2 Top of fire-resistance rated walls.
 - .3 Penetrations through fire-resistance
rated floors and ceilings.
 - .4 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.
- .2 Smoke seal only at:
 - .1 Penetrations through all partitions and
walls specified as separations without
ratings.
 - .2 Top of all "unrated" partitions, as per
plans. (Separations without a fire-resistant
rating.)

3.7 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.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 06 40 00 - Architectural Woodwork.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.
 - .2 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.
 - .3 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
- .2 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .3 General Services Administration (GSA) - Federal Specifications (FS)
 - .1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.
- .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).

1.3 SUBMITTALS

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

-
- | | | |
|--|----|---|
| 1.3 SUBMITTALS
(Cont'd) | .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. |
|
 | | |
| 1.4 QUALITY
ASSURANCE/MOCK-UP | .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 48 hours for inspection of mock-up by Department 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. |
|
 | | |
| 1.5 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. |
-

1.6 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .6 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.
- .7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Department Representative.
- .8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.
- .9 Fold up metal banding, flatten, and place in designated area for recycling.

1.7 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.

1.7 PROJECT
CONDITIONS
(Cont'd)

- .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.

1.8 ENVIRONMENTAL
REQUIREMENTS

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

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 Use only no or low VOC content materials. 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 Type 1 - Urethanes One Part.
.1 Self-leveling.
.2 Acceptable material:
.1 Tremco Tremflex S/L.
.2 Vulkem 45.
.3 Sonneborn SL 1.

2.2 SEALANT
MATERIAL
DESIGNATIONS
(Cont'd)

- .2 Type 2 - Urethanes One Part.
 - .1 Non-Sag to CAN/CGSB-19.13, Type 2, MCG-2-25 colour to be selected.
 - .2 Acceptable material:
 - .1 Tremco Dymonic.
 - .2 Vulkem 116.
 - .3 Sonneborn NP 1.
- .3 Type 3 - Silicones One Part.
 - .1 To CAN/CGSB-19.22 (mildew resistant).
 - .2 Acceptable material:
 - .1 Tremco Proglaze.
 - .2 Dow 786.
 - .3 Sonneborn Omniplus.
- .4 Type 4 - Acrylic Latex One Part.
 - .1 To CAN/CGSB-19.17.
 - .2 Acceptable material:
 - .1 Tremco 100 latex.
 - .2 Sonneborn Sonolac.
- .5 Type 5 - Acoustical Sealant.
 - .1 To CAN/CGSB-19.21.
 - .2 Acceptable material:
 - .1 Tremco acoustical sealant.
 - .2 Sonneborn Acoustical.
- .6 Preformed Compressible and Non-Compressible back-up materials.
 - .1 Neoprene or Butyl Rubber.
 - .1 Round solid rod, Shore A hardness 70.
 - .2 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.
 - .3 Bond Breaker Tape.
 - .1 Polyethylene bond breaker tape which will not bond to sealant.

2.3 SEALANT
SELECTION

- .1 Primers of exterior openings where frames meet exterior facade of building: Sealant Type 2.
- .2 Coping joints and coping-to-facade joints: Sealant Type 2.

2.3 SEALANT
SELECTION
(Cont'd)

- .3 Seal interior perimeters of exterior openings as detailed on drawings: Sealant Type: 4.
- .4 Interior control and expansion joints in floor surfaces: Sealant Type: 2
- .5 Perimeters of interior frames and trim: Sealant Type: 4.
- .6 Perimeter of washroom fixtures (eg urinals, waterclosets, basins, vanities, etc: Sealant Type 3.

2.4 JOINT CLEANER

- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
- .2 Primer: as recommended by manufacturer.

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.

-
- | | | |
|--|----|--|
| <u>3.2 SURFACE PREPARATION</u>
(Cont'd) | .5 | Prepare surfaces in accordance with manufacturer's directions. |
|--|----|--|
-
- | | | |
|--------------------|----|---|
| <u>3.3 PRIMING</u> | .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. |
-
- | | | |
|----------------------------|----|--|
| <u>3.4 BACKUP MATERIAL</u> | .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. |
-
- | | | |
|-------------------|----|--|
| <u>3.5 MIXING</u> | .1 | Mix materials in strict accordance with sealant manufacturer's instructions. |
|-------------------|----|--|
-
- | | | |
|------------------------|----|---|
| <u>3.6 APPLICATION</u> | .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. |
-

- 3.6 APPLICATION .2 (Cont'd)
(Cont'd) .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.
- .4 Defective work: shall include, but not be restricted to, joint leakage, cracking, crumbling, melting, runny, loss of adhesion, loss of cohesion, or staining of adjoining or adjacent work or surfaces. Contractor to make good any defective sealant work.