

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM E96-00e1, Test Methods for Water Vapour Transmission of Materials.
 - .2 ASTM C1289-02, Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .2 Underwriters Laboratories of Canada (ULC).
 - .1 CAN/ULC-S701-01, Thermal Insulation, Polystyrene, Boards and Pipe Coverings.

1.2 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 Submit two copies of WHMIS MSDS - Material Safety Data Sheets. Indicate VOC's insulation products and adhesives.
- .2 Manufacturer's Instructions: Submit manufacturer's installation instructions.

Part 2 Products

2.1 INSULATION

- .1 Wall insulation above grade: extruded polystyrene board Type 4, rigid closed cell type with high density skin..
 - .1 Thermal resistance: RSI value 3.52 .
 - .2 Board size: 610 x 1220 mm, thickness as indicated.
 - .3 Compressive strength: to ASTM D1621, minimum 210 kPa.
- .2 Foundation to pile : extruded polystyrene board Type 4, rigid closed cell type with high density skin, c/w integral 9 mm thick latex modified concrete facing
 - .1 Thermal resistance: RSI value 0.87/25 mm to ASTM C518
 - .2 Board size: 610 x 1220 mm, 50 mm thick.
 - .3 Compressive strength: to ASTM D1621, minimum 210 kPa.
- .3 Roof insulation: to Section 07 52 00

2.2 ADHESIVE

- .1 Adhesive: to manufacturer's written recommendations.
- .2 Insulation clips: to manufacturer's written recommendations.

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. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.
- .5 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: Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.4 RIGID INSULATION INSTALLATION

- .1 Apply adhesive to substrate in accordance with manufacturer's recommendations.
- .2 Imbed insulation boards into adhesive, applied as specified, prior to skinning of adhesive.
- .3 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm wide 0.15 mm modified bituminous membrane over expansion and control joints using compatible adhesive and primer before application of insulation.

3.5 PERIMETER FOUNDATION INSULATION

- .1 Exterior application: polystyrene concrete faced board 610 mm. Install on exterior face of insulation with fastening clips and cap flashing in accordance with manufacturer's installation guidelines.

3.6 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Underwriters Laboratories of Canada (ULC).
 - .1 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

1.2 SUBMITTALS

- .1 Product Data: Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00.

Part 2 Products

2.1 INSULATION

- .1 Batt and blanket mineral fibre: to CAN/ULC S702, Type 1 (friction fit), thickness and/or RSI as indicated.

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 75mm from heat emitting devices such as recessed light fixtures.
- .5 Do not enclose insulation until it has been inspected and approved by Contract Administrator.

END OF SECTION

Part 1 General

1.1 PRODUCT DATA

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data sheets for system materials. Include product characteristics, performance criteria, limitations and colours.

1.2 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit one 600 x 600 mm sample of panel of complete stucco system showing finish texture, colour, and thickness of coats.

1.3 QUALIFICATIONS

- .1 Installation of exterior finish system by applicators certified by manufacturers of system used.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in accordance with manufacturer's instructions.
- .3 Protect material from damage by moisture and freezing.

1.5 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

- .1 Temperature, relative humidity, moisture content.
 - .1 Apply exterior finish system components at temperatures, relative humidity, and substrate moisture content and substrate temperature in accordance with manufacturer's written instructions.
 - .2 Maintain ambient temperature above 4 C during base coat application and until cured minimum 24 hours.
 - .3 Maintain ambient temperature above 4 C during finish coats applications and until cured minimum 24 hours.
- .2 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of insulation, adhesive and caulking materials.

Part 2 Products

2.1 MATERIALS

- .1 Stucco Wire: standard type, 50 mm x 50 mm x 1.588/1.588 gauge, galvanized.
- .2 Tie wire: galvanized, soft-annealed wire no. 18 I.W. gauge.
- .3 Metal accessories: such as reveal joints, corner beads, base screeds, expansion joints of standard manufacture with perforated or expanded flanges, fabricated from galvanized steel not lighter than 0.50 mm.
- .4 Cornerite: standard manufacture, expanded 0.50 mm (minimum) galvanized sheet steel with 75 mm legs.
- .5 Striplath: standard manufacture, expanded 0.50 mm (minimum) diamond mesh sheet steel, galvanized.
- .6 Water: Potable and free from impurities.
- .7 Sand: clean, coarse, sharp, well screened. conforming to ASTM C 897.
- .8 Hydrated Lime: to ASTM C 206 Type N.
- .9 Portland cement: ASTM C 150
- .10 Stucco base and brown coat: water/weather resistant cement plaster requiring only the addition of sand aggregate, lime and water.
- .11 Finish coat: 100% Acrylic Polymer by Dryvit, finish sand pebble, colour as selected from standard colour range by Contract Administrator.

2.2 MIXES GENERAL

- .1 Size mixer to produce batches that will be applied within maximum of 1-1/2 hours after mixing.
- .2 Proportioning and mixing of materials shall be in strict accordance with material manufacturer's written instructions.
- .3 Add pigments or other specified admixtures to batch in accordance with manufacturer's recommendations.
- .4 Retempering of basecoat cement plaster is permitted one time only after initial mixing. Plaster not used within 1-1/2 hours of initial mixing shall be discarded.

2.3 MIXING MECHANICAL

- .1 Mix each batch separately; double batching with single batch discharge shall not be permitted.
- .2 Maintain mixer in clean condition before, during and after plaster preparation. Remove partially set and hardened plaster from mixer drum before next batch. If mixer has been previously used in preparing gypsum; plaster, thoroughly clean prior to use to prepare cement plaster.
- .3 Mix factory prepared, finish coat plaster in accordance with manufacturer's recommendations.
- .4 Hand mixing shall be allowed only when authorized by Contract Administrator.

Part 3 Execution

3.1 EXAMINATION

- .1 Inspect and verify condition of existing substrate surfaces for contamination, surface absorption, chalkiness, cracks, damage, deterioration, moisture content, moisture damage,

and tolerances. Report deviations from specified requirements or other conditions that might adversely affect exterior finish system installation in writing to Contract Administrator.

- .2 Proceed with Work only after receipt of written approval from Contract Administrator.

3.2 PREPARATION

.1 Protection

- .1 Protect adjacent surfaces from damage resulting from Work of this section.
- .2 Protect finished Work from water penetration at end of each day or on completion of each section of Work.
- .3 Protect installation from moisture for 48 hours minimum after completion of each portion of Work.

.2 Surface preparation

- .1 Ensure environmental and site conditions are suitable for installation of system.
- .2 Prepare surfaces in accordance with manufacturer's written instructions.

3.3 REINFORCING

- .1 Install galvanized metal where required to provide solid support for stucco reinforcing.
- .2 Install reinforcing with long dimension horizontal, lapping joints at not less than 25 mm, lapping upper courses over lower courses, and lapping ends.
- .3 At external corners, wrap reinforcing around corner and reinforce with external corner reinforcement.
- .4 At internal corners, fold reinforcing through corner and reinforce with interior corner reinforcement.

3.4 ACCESSORIES

- .1 Erect accessories straight, plumb, level, rigid and in the proper plane. use full length pieces to minimize joints. Fit lengths together without gaps, accurately align and rigidly secure each side of joints. Mitre and fit corners accurately, without rough edges.
- .2 Provide corner beads at external angles. Secure into position at maximum 200 mm oc.
- .3 Provide casing beads wherever stucco terminates and abuts other surfaces and where specifically called for on drawings.

3.5 APPLICATION

.1 Scratch coat:

- .1 Use sufficient material and force to form good key.
- .2 Bring out to grounds, straighten to true surface, compact, and rake to ensure adequate bond for brown coat. Moist cure for 48 hours.

.2 Brown coat:

- .1 Use sufficient material and force to form good key.
- .2 Straighten to true surface, compact, and float smooth to ensure adequate bond for finish coat. Moist cure for 48 hours.
- .3 Finish Coat: Use sufficient material, straighten to true surface, compact, and finish to sandpebble as per approved sample.

- .4 Apply cement plaster with interruptions occurring only at junctures of plaster planes, at openings, or control joints.
- .5 Install plaster over metal base in accordance with the requirements of ASTM C 926 for the application of cement plaster on metal plaster bases.
- .6 Expansion joints
 - .1 Install expansion joints in locations indicated and to manufacturers written instructions.
 - .2 Install expansion joints at isolation joints in substrate, at locations where movement is expected to be greater than 6 mm.

3.6 CURING

- .1 When ambient relative humidity will be below 75% during non-work hours, moist cure the set and hardened basecoat plaster at the end of the work day by spraying a fine mist of water over the entire surface. Repeat application of a fine mist of water morning and evening until plaster has been in place hours. Alternatively, coverage of the basecoat plaster with plastic membrane until application of subsequent coat or finish coat plaster is permitted.
- .2 When ambient relative humidity will be above 75% during non-work hours, neither water spraying nor coverage with plastic membrane are required.

3.7 FINISH COATS

- .1 Apply plaster finish coats as per manufacturer's instructions.
- .2 Texture finish coat to match approved sample.

3.8 TOLERANCE

- .1 Complete stucco work such that the deviation from true plane (exclusive of texture) is no greater than 1/8 in. (3 mm) as measured from line of a 10-ft (3.5-m) straightedge placed at any location on surface.

3.9 ADJUST AND CLEAN

- .1 Patching:
 - .1 Point-up plaster around trim and other locations where plaster abuts dissimilar materials.
 - .2 Remove defective and damaged plaster by cutting it out.
 - .3 Remove by cutting out stained and discoloured finish coat plaster scheduled to remain natural and unpainted.
 - .4 Replace removed plaster using plaster with same composition and brought to desired texture and color consistent with surrounding area.
- .2 Cleaning:
 - .1 Remove protective materials masking adjacent surfaces.
 - .2 Remove stains that affect uniformity of plaster finish.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American National Standards Institute (ANSI).
 - .1 ANSI B18.6.4-99, Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws.
 - .2 ASTM A653/A653M-[02a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.2 SUBMITTALS

- .1 Product data: submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures
- .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate dimensions, profiles, attachment methods, schedule of fascia and soffit, trim and closure pieces, metal furring, and related work.
- .3 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit duplicate samples of siding material, of colour and profile specified.
- .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.3 QUALITY ASSURANCE

- .1 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 METAL FACIA, SOFFIT AND COMPONENTS

- .1 Base metal: continuous hot dipped zinc coated galvanized sheet steel conforming to ASTM A653M, thickness .607 mm.
- .2 Siding:
 - .1 Gauge: 24.
 - .2 Profile: Vicwest AD300R

.2 Colour: as selected by Contract Administrator from manufacturer's stand colour range.

.3 Exposed trim: same material, thickness, colour, profile as fascia and soffit.

2.2 ACCESSORIES

.1 Exposed trim:, inside corners, outside corners, cap strip, drip cap,, starter strip of same material, colour and gloss as soffit and fascia, with fastener holes pre-punched.

2.3 FASTENERS

.1 Screws: ANSI B18.6.4. Purpose made cadmium plated steel of same colour as siding

2.4 CAULKING

.1 Sealants: to Section 07 92 10.

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

.1 Install fascia, soffit in accordance with manufacturer's written instructions

.2 Install continuous starter strips, inside and outside corners, edgings, as indicated.

.3 Install outside corners, fillers and closure strips with carefully formed and profiled work.

.4 Maintain joints in exterior fascia/ soffit, true to line, tight fitting, hairline joints.

.5 Attach components in manner not restricting thermal movement.

.6 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 10 - Joint Sealing.

3.3 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C 1177/C1177M-01, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - .2 ASTM D41-94(2002)e1, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
 - .3 ASTM D6162-00a, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fibre Reinforcements.
 - .4 ASTM D6164-00, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- .2 Canadian Roofing Contractors Association (CRCA).
 - .1 CRCA Roofing Specifications Manual-1997.
- .3 Canadian Standards Association (CSA International).
 - .1 CAN/CSA-A123.4-98, Asphalt for Use in Construction of Built-Up Roof Coverings and Waterproofing Systems.
- .4 Health Canada / Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .5 Underwriters Laboratories' of Canada (ULC).
 - .1 CAN/ULC-S701-01, Thermal Insulation, Polystyrene, Boards and Pipe Covering.

1.2 PERFORMANCE REQUIREMENTS

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

1.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00.
- .2 Submit two copies of most recent technical roofing components data sheets describing materials' physical properties.
- .3 Submit WHMIS MSDS - Material Safety Data Sheets.
- .4 Submit shop drawings in accordance with Section 01 33 00.
- .5 Indicate flashing, control joints, tapered insulation, curbs and roof drain details.

- .6 Manufacturer's Installation Instructions: indicate special precautions required for seaming the membrane.

1.4 QUALITY ASSURANCE

- .1 Convene pre-installation meeting one week prior to beginning waterproofing Work, with roofing contractor's representative and Contract Administrator to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other building subtrades.
 - .4 Review manufacturer's installation instructions and warranty requirements.
- .2 Co-ordinate with wall air/vapour barriers to insure a complete and compatible system of joining the two systems.
- .3 Applicators shall have a minimum of three years proven experience in the installation of Modified Bituminous membranes in accordance with CRCA standards.
- .4 Applicators shall be approved by the membrane manufacturer for installation of the products specified.

1.5 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 completed Work to enable movement of material and other traffic.
- .5 Store sealants at +5 degrees C minimum.
- .6 Store insulation protected from daylight and weather and deleterious materials.
- .7 Handle roofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance.

1.6 PROTECTION

- .1 Fire Extinguishers: maintain one cartridge operated type or stored pressure rechargeable type with hose and shut-off nozzle, ULC labelled for A, B and C class protection, on roof per torch applicator, within 6 m of torch applicator.
- .2 Maintain fire watch for 1 hour after each day's roofing operations cease.

1.7 ENVIRONMENTAL REQUIREMENTS

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

Part 2 Products

2.1 DECK COVERING

- .1 Gypsum board sheathing: to ASTM 1177M-01, 12.7 mm thick.

2.2 DECK PRIMER

- .1 Primer steel deck: primer as recommended by manufacturer for peel and stick application.

2.3 VAPOUR RETARDER

- .1 Self adhesive vapour retarder waterproofing membrane strip, non-woven polyester reinforcement and elastomeric bitumen , 3 mm thick.

2.4 POLYSTYRENE INSULATION

- .1 Extruded polystyrene (XPS) insulation to CAN/ULC-S701, Type 4 compressive strength 210 kPa, RSI 6.7.

2.5 OVERLAY BOARD

- .1 Overlay Board: 6 mm thick asphalt based recovery board with non-woven glass facers, as recommended by the membrane manufacturer.

2.6 MEMBRANE

- .1 Base sheet: to polyester fibres to ASTM D6164.
 - .1 Styrene-Butadiene-Styrene (SBS) elastomeric polymer prefabricated sheet, polyester reinforcement, having nominal weight of 180 g/m².
 - .2 Type 2, fully adhered.
 - .3 Class C - plain surfaced.
 - .4 Grade: heavy duty service.
 - .5 Top and bottom surfaces:
 - .1 polyethylene.
- .2 Cap sheet membrane: to combination of polyester and glass fibres to ASTM 6162.

- .1 Styrene-Butadiene-Styrene(SBS) elastomeric polymer, prefabricated sheet, glass/
polyester reinforcement, having nominal weight of 250 g/m².
- .2 Type 1 fully adhered.
- .3 Class A-granule surfaced.
 - .1 Colour for granular surface: gray
- .4 Grade heavy duty service.
- .5 Bottom surface polyethylene.

- .3 Flashing membranes: same membranes as specified for base and cap sheets.
 - .1 base sheet 180.
 - .2 cap sheet 250.

- .4 Walkway/ pipe support: membrane: fibreglass reinforced SBS modified bitumem 5 mm
thick

2.7 BITUMEN

- .1 Asphalt: to CAN/CSA A123.4, Type in accordance with roof slope.

2.8 SEALERS

- .1 Plastic cement: asphalt.
- .2 Sealing compound: rubber asphalt type.
- .3 Sealants: Caulking - see Section 07 92 10 - Joint Sealing.

2.9 CARPENTRY

- .1 Refer to Section 06 10 10 - Rough Carpentry.

2.10 FASTENERS

- .1 Covering to steel deck: No. 10 flat head, self tapping, Type A or AB, cadmium plated
screws.
- .2 Insulation, overlay board to deck: coated insulation fasteners and galvanized plates must
meet FM Approval I90 for wind uplift and corrosion resistance, as recommended by
insulation manufacturer.

Part 3 Execution

3.1 WORKMANSHIP

- .1 Do examination, preparation and roofing Work in accordance with Roofing
Manufacturer's Specification Manual and CRCA Roofing Specification Manual,
Provincial Roofing Association Manual.

- .2 Do priming for asphalt roofing in accordance with ASTM D41-94(2002)e1.
- .3 The interface of the walls and roof assemblies will be fitted with durable rigid material providing connection point for transition piece for continuity of air/vapour barrier.
- .4 Assembly, component and material connections will be made in consideration of appropriate design loads.

3.2 EXAMINATION OF ROOF DECKS

- .1 Inspect with Contract Administrator deck conditions including parapets, construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed.
- .2 Prior to beginning of work ensure:
 - .1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris. Do not use calcium or salt for ice or snow removal.
 - .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 Do not install roofing materials during rain or snowfall.

3.3 PROTECTION

- .1 Cover walls, walks, sloped roofs 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.
- .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.
- .7 Metal connectors and decking will be treated with rust proofing or galvanization.

3.4 DECK COVERING

- .1 Mechanically fasten to steel deck Gypsum Board with screws to steel deck's upper rib surfaces, spaced 400 mm on centre 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 (STEEL DECK-GYPSUM BOARD)

- .1 Adhere vapour retarder as per manufacturer's instructions.
- .2 Install transition material and primer to provide a continuous seal between roof and wall air/vapour barrier.

3.6 EXPOSED MEMBRANE ROOFING APPLICATION

- .1 Insulation: mechanically fastened application:
 - .1 Mechanically fasten insulation using screws and pressure distribution plates.
 - .2 Number and pattern of screws per board to meet Factory Mutual requirements 1-90.
 - .3 Place boards in parallel rows with ends staggered, and in firm contact with one another.
 - .4 Cut end boards to suit.
- .2 Tapered insulation application:
 - .1 Install tapered insulation as second insulation layer, in accordance with shop drawings. Stagger joints between layers 150 mm minimum.
- .3 Overlay Board: application:
 - .1 Mechanically fasten using screws and pressure distribution plates.
 - .2 Number and pattern of screws per board to meet Factory Mutual requirements 1-90.
 - .3 Place boards in parallel rows with end joints staggered. Cap joints approximately 25 mm.
 - .4 Cut ends to suit and apply adhesive in continuous ribbons at 300 mm on centre.
 - .5 Apply two layers with long axis of each sheet transverse with end joints staggered.
- .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 degrees 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 Walkway/pipe support sheet application, location and size as indicated on the drawings for walkways and under rubber mat:
- .1 Starting at low point on roof, perpendicular to slope, unroll walkway sheet, align and reroll from both ends.
 - .2 Unroll and embed walkway 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 walkway sheet 300 mm minimum from those in cap sheet.
 - .5 Application to be free of blisters, fishmouths and wrinkles.
 - .6 Do membrane application in accordance with manufacturer's recommendations.
 - .7 Install at pipe supports as indicated.
 - .8 Install along total length of rail guard and ladder details, extending a minimum of 1 meter.

3.7

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 and Section 07 62 00 - Sheet Metal Flashing and Trim.
- .7 Roof penetrations: Install roof drain pans, vent stack covers and other roof penetration flashings and seal to membrane in accordance with manufacturer's recommendations and details.

3.7

FIELD QUALITY CONTROL

- .1 Inspection and testing of roofing application will be carried out by testing laboratory designated by Contract Administrator.

3.8 CLEANING

- .1 Remove bituminous markings from finished surfaces.
- .2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.
- .3 Repair or replace defaced or disfigured finishes caused by work of this section.

END OF SECTION

Part 1 General

1.1 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 A591/A591M-98, Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating [Mass] Applications.
 - .2 ASTM A606-01, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
 - .3 ASTM A653/A653M-01a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .4 ASTM A792/A792M-02, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .5 ASTM B32-00, Standard Specification for Solder Metal.
 - .6 ASTM D523-89(1999), Standard Test Method for Specular Gloss.
- .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.
- .5 Canadian Standards Association (CSA International)
 - .1 CSA A123.3-98, Asphalt Saturated Organic Roofing Felt.
 - .2 CSA-A440-00/A440.1-00 - A440-00, Windows / Special Publication A440.1-00, User Selection Guide to CSA Standard A440-00, Windows.
 - .3 CSA B111-1974(R1998), Wire Nails, Spikes and Staples.

1.2 SAMPLES

- .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, colour and finish.

Part 2 Products

2.1 SHEET METAL MATERIALS

- .1 Zinc coated steel sheet: 0.76 mm thickness, commercial quality to ASTM A653/A653M, with Z275 designation zinc coating.
- .2 Aluminum-zinc alloy coated steel sheet: to ASTM A792/A792M, commercial quality, grade with AZ180 coating, regular spangle surface, chemically treated for unpainted finish and not chemically treated for paint finish, 0.762 mm base metal thickness.

2.2 PREFINISHED STEEL SHEET

- .1 Thickness specified for prefinished steel sheet applies to base metal 0.762 mm.

2.3 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32, asphalt laminated 3.6 to 4.5 kg kraft paper, No. 15 perforated asphalt felt to CSA A123.3.
- .4 Sealants: to Section 07 92 10.
- .5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness 0.45 mm same as sheet metal being secured.
- .6 Fasteners: of same material as sheet metal, to CSA B111, 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.

2.4 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 2400 mm maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm. Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.5 METAL FLASHINGS

- .1 Form flashings, copings and fascias to profiles indicated of 0.762 mm thick galvanized , prefinished steel sheet.

2.6 REGLETS AND CAP FLASHINGS

- .1 Form reglets metal cap flashing of 0.762 mm thick sheet metal for base flashings as detailed and in accordance with CRCA details. Provide slotted fixing holes and steel/plastic washer fasteners. Cover face and ends with plastic tape.

2.7 DOWNPIPES

- .1 Form eaves troughs and downpipes from 0.762 mm thick prefinished steel sheet metal, Sizes and profiles as indicated.

2.8 SCUPPERS

- .1 Form scuppers from 0.762 mm thick prefinished steel sheet metal, sizes and profiles as indicated.
- .2 Provide necessary fastenings.

Part 3 Execution

3.1 INSTALLATION

- .1 Install sheet metal work in accordance with CRCA details.
- .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.

3.2 DOWNPIPES

- .1 Install downpipes and provide goosenecks back to scupper. Secure downpipes to wall with straps at 1800 mm on centre; minimum two straps per downpipe. Solder seal joints.

3.3 SCUPPERS

- .1 Install scuppers as indicated.

END OF SECTION

Part 1 General

1.1 RELATED WORK

- .1 Fire stopping and smoke seals within mechanical assemblies and electrical assemblies are specified in mechanical and electrical sections 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 duplicate 300 x 300 mm samples showing actual firestop material proposed for project.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings.
- .2 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.
- .3 Shop drawings to indicate locations where firestopping is used, required fire resistance rating, the material to be used and the tested design system (ULC or WH).

1.5 PRODUCT DATA

- .1 Submit product data.
- .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.

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 and conforming to special requirements specified in 3.5.
 - .2 Firestop system rating: as indicated.
- .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 partitions and walls.
 - .2 Top of fire-resistance rated partitions and walls.
 - .3 Intersection of fire-resistance rated partitions and walls.
 - .4 Control and sway joints in fire-resistance and walls.
 - .5 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
 - .6 Openings and sleeves installed for future use through fire separations.
 - .7 Around mechanical and electrical assemblies penetrating fire separations.
 - .8 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 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 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-19.22-M89 Mildew Resistant, Sealing Compound for Tubs and Tiles.
 - .4 CAN/CGSB-19.24-M90 Multi-component, Chemical Curing Sealing Compound.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM C919-02, Standard Practice for Use of Sealants in Acoustical Applications.

1.2 SUBMITTALS

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

1.3 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00.
- .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.

1.4 PROJECT CONDITIONS

- .1 Environnemental 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.

1.5 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 Contract Administrator by use of approved portable supply and exhaust fans.

1.6 QUALITY ASSURANCE

- .1 Perform the work by experienced and skilled mechanics thoroughly trained and competent in the use of caulking and sealing equipment and the specified materials with at least five years experience.
- .2 Arrange with the caulking and sealant manufacturers for a visit at the job site by one of their technical representatives before beginning the caulking and sealing installation to discuss with the Contractor and the Contract Administrator the procedures to be adopted, to analyse site conditions and inspect the surfaces and joints to be sealed, in order that type of sealant recommendations may be made for typical joint configuration.
- .3 Discuss the following items and provide a written report indicating:
 - .1 Sealants and caulking materials selected for use from those specified;
 - .2 Surface preparation requirements;
 - .3 Priming and application procedures;
 - .4 Verification that sealants and caulking are suitable for purposes intended and joint design;
 - .5 Sealants and caulking are compatible with other materials and products with which they come in contact including but not limited to sealants provided under other Sections, insulation adhesives, bitumens, block, concrete, metals and metal finishes.

- .6 Verification that sealant and caulking are suitable for temperature and humidity conditions at time of application and will not stain adjacent surfaces;
- .7 Recommended sealant for each type of joint configuration;
- .8 Joint design;
- .9 Anticipated frequency and extent of joint movement.
- .10 Number of beads to be used in the sealing operation;
- .11 Suitability of durometer hardness and other properties of material to be used;
- .12 Weather conditions under which work will be done.

Part 2 Products

2.1 SEALANT MATERIAL DESIGNATIONS

- .1 Silicones One Part '3'.
 - .1 To ASTM C919-02 and ASTM C920-05, primerless, Type S, Grade NS, SWRI validated. Polysulfide Two Part '1B'.
 - .1 Non-Sag to CAN/CGSB-19.24-M90, Type 2, Class B.
- .2 Acrylics One Part '4': To CGSB 19-GP-5M-84.
- .3 Acoustical Sealant '6': One part silicone to ASTM C919-02 and ASTM C920-05, primerless, Type S, Grade NS, Class 25, SWRI validated.
- .4 Exterior glazing sealant '10': one part silicone to ASTM C920-05, Type S, Grade NS, Class 50.
- .5 Interior glazing sealant '10': one part silicone to ASTM C920-05, Type S, Grade NS, Class 25.
- .6 Silicones One Part '11': to CAN/CGSB-19.22 mildew resistant.
- .7 Preformed Compressible and Non-Compressible back-up materials.
 - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
 - .1 Extruded closed cell foam backer rod.
 - .2 Size: oversize 30 to 50 %.
 - .2 Neoprene or Butyl Rubber.
 - .1 Round solid rod, Shore A hardness 70.
 - .3 High Density Foam.
 - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/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.
- .7 Sealant for fireproofing; where cables, conduits, pipes and ducts pass through floors and fire-rated walls, pack space between wiring and sleeve full with penetrating foam sealing system, ULC listed meeting CAN4-S115-M85 and ASTM E814.
- .8 Colours: Colours shall be selected from manufacturer's standard colour range. Colours to match material / background colour upon which they occur. Final colour selection by Contract Administrator.
- .9 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.
- .10 When low toxicity caulks are not possible, confine usage to areas which off gas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize off gas time.
- .11 Where sealants are qualified with primers use only these primers

2.2 SEALANT SELECTION

- .1 Perimeters of exterior openings where frames meet exterior facade of building (ie. brick, block, precast masonry): Designations, 3, 4.
- .2 Expansion and control joints in exterior surfaces of poured-in-place concrete walls: Designations 3, 10.
- .3 Control and expansion joints in exterior surfaces of unit masonry walls: Designations 3.
- .4 Coping joints and coping-to facade joints: Designations 3.
- .5 Exterior joints in horizontal wearing surfaces (as itemized): Designations 10.
- .6 Seal interior perimeters of exterior openings as detailed on drawings: Designations 3.
- .7 Control and expansion joints on the interior of exterior surfaces of unit masonry walls: Designations 3.
- .8 Interior control and expansion joints in floor surfaces: Designations 10.
- .9 Perimeters of interior frames, as detailed and itemized: Designations 3.
- .10 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): Designations 3.
- .11 Joints at tops of non-load bearing masonry walls at the underside of poured concrete: Designations 3, 6.
- .12 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities): Designations 11.

- .13 Joints in washrooms, janitors room etc Designations 11.
- .14 Exposed interior control joints in drywall: Designations 3.
- .15 Joints in polyethylene and where acoustical sealant is specified: Designations 6.

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