Part 1 General

1.1 ACTION AND SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit product data: Provide data on specified products, describing physical and performance characteristics.

.3 Submit two copies WHMIS MSDS sheets for products.

.4 Installation Data: Submit manufacturer's installation instructions indicating special procedures, and perimeter conditions requiring special attention.

.5 Closeout Submittals: Provide operation and maintenance data for epoxy flooring for incorporation into manual specified in Section 01 78 00 – Closeout Submittals.

.1 Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

1.2 QUALITY ASSURANCE

.1 Qualifications:

.1 Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

.2 Installer: Company specializing in performing the work of this section and approved by the manufacturer.

.2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:

.1 Deliver materials in manufacturer’s original sealed containers with all labels intact and legible.

.2 Store in accordance with manufacturer’s instructions for temperature, safety and handling.

1.4 ENVIRONMENTAL REQUIREMENTS

.1 Maintain substrate temperature at water repellent/ anti-graffitiant installation area in accordance with water repellent/ anti-graffitiant manufacturer’s printed instructions.

.2 Apply coating during dry weather. Allow surfaces to dry minimum of 3 days after rainfall or cleaning before applying further coats.

.3 Protect plant and vegetation which might be damaged by water repellent/ anti-graffitiant.

.4 Protect surfaces not intended to have application of water repellent/ anti-graffitiant.

Part 2 Products

2.1 MATERIALS – CONCRETE BLOCK SUBSTRATES

.1 Acceptable Manufacturer: Professional Products of Kansas, Inc.

.2 Solvent based coating: colourless, penetrating, methyl and butyl, methylmethacrylate co-polymer resin.

.3 Water base coating: colourless

.4 Graffiti resistant coatings:

.1 The graffiti resistant coating product is selected as a standard of quality and based on manufacturer's recommendations for executions. Application procedure and coverage rates to be on conformance with effectiveness of testing samples submitted, recommendations of application rates suggested, approved manufacturers standards and as a minimum, that specified herein.

.2 Performance:

.1 Product to penetrate the surface of the material to which it is applied. The active ingredients react to form silicone rubber, which remains below the surface and prevents water from penetrating while permitting water vapour transmission. The silicone rubber retains its characteristics 400 percent elongation for bridging of hairline cracks, expansion and contraction, building movement and extremes of temperature.

.2 Water repellent/ anti-graffitiant to be unaffected by ultraviolet light, ozone, water, de-icers and acid.

.3 Slight darkening or enhancement is acceptable.

.3 Professional Water Sealant and Anti-Graffitiant, PWS-15 Super Strength:

.1 Form: Liquid

.2 Colour: Clear

.3 Active Substance: RTV Silicone Rubber

.4 Percent Active Material: 15 percent

2.2 MATERIALS – EIFS SUBSTRATES

.1 Acceptable Manufacturer: Proscoc "Sacrificial Coating SC-1".

.2 Water base coating: colourless

.3 Graffiti resistant coatings:

.1 The graffiti resistant coating product is selected as a standard of quality. Provided product acceptable to EIFS supplier. Application procedure and coverage rates to be on conformance with effectiveness of testing samples submitted, recommendations of application rates suggested, approved manufacturers standards and as a minimum, that specified herein.

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 datasheets.

3.2 PREPARATION

.1 Clean all dirt, oil, grease, mould, mildew, efflorescence, or any other coating or material from surface that interfere with penetration, performance, adhesion, or aesthetics of water repellent/ anti-graffitiant. Rinse thoroughly, using pressure water spray to remove cleaner residues. Allow surface to dry completely before application of water repellent/ anti-graffitiant.

.2 Repair, patch, and fill all cracks, voids, defects, and damaged areas in surface as approved by the Contract Administrator. Allow repair material to cure completely before application of water repellent/ anti-graffitiant.

.1 Allow new masonry and concrete construction and repointed surfaces to cure for a minimum of 28 days before application of water repellent.

.2 Confirm with EIFS supplier appropriate curing time, and comply with EIFS supplier’s written recommendations.

3.3 INSTALLATION

.1 Install in accordance with manufacturer’s instructions.

.2 Comply with applicable federal, state, and local environmental regulations.

.3 Store containers upright in a cool, dry place. Keep away from sparks and open flame. Store and handle materials in accordance with manufacturer’s written instructions. Use product within 48 hours of opening container.

.4 Use PWS-15 Super Strength (15 percent solids) within 8 hours of opening.

3.4 GRAFFITI RESISTANT COATINGS

.1 The product to be applied to:

.1 All new exposed exterior concrete and masonry (Vestibule 100).

.2 All EIFS below building elevation102 600.

.2 Apply graffiti resistant coating to substrate in accordance with manufacturer’s written instructions, environmental regulations, and application procedures determined from the test panel results.

.3 Apply material as shipped by manufacturer.

.1 Do not dilute.

.4 Apply to clean, dry, cured, and properly prepared surfaces.

.1 Do not apply to below grade surfaces.

.2 Do not apply to painted surfaces.

.5 Apply material to manufacturer's written recommendations.

.6 Masonry Surfaces: Two Coat Application for Graffiti Protection over Entire Surface:

.1 First Coat over Entire Surface: Apply PSW-15 Super Strength in a flood coat, from top to bottom of wall, being sure to obtain a 4 to 6 inch run down of product from the point where the spray makes contact with the surface. Work all the way down the building covering the rundown as you go. Avoid excessive overlapping. Some substrates may require back rolling after products applied to smooth out any rundown lines. Brush any excess product that may accumulate on ledges and other areas that may hold excess material.

.2 Second Coat over Entire Surface: Allow surface to dry to the touch before applying a second coat of PSW-15 Super Strength (approx. 2 hours). Repeat application as described for first coat.

3.5 APPLICATION

.1 Apply water repellent / anti-graffitiant in accordance with manufacturer's printed instructions.

3.6 FIELD OF QUALITY CONTROL

.1 After water repellent / anti-graffitiant has dried, spray coated surfaces with water to verify coating coverage. Allow Contract Administrator to witness test.

3.7 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Gas Association (CGA)

.1 CAN/CGA-B149.1-05, Natural Gas and Propane Installation Code Handbook.

.2 CAN/CGA-B149.2-05, Propane Storage and Handling Code.

.2 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S604-M91, Standard for Type A Chimneys.

.2 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.

.3 CAN/ULC-S704-03, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data: Submit manufacturer's printed product literature, specifications and data sheet.

.2 Submit manufacturer's installation instructions.

1.3 QUALITY ASSURANCE

.1 Convene pre-installation meeting one week prior to beginning work of this Section on-site installations.

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordinate with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

.2 Health and Safety Requirements: do construction occupational safety and health in accordance with City Safety and Health Requirements.

Part 2 Products

2.1 INSULATION

.1 Wall Rigid Cellular Polyisocyanurate:

.1 Faced: to CAN/ULC C-S704.

.2 Polyisocyanurate core.

.3 Surfaces: reflective foil facer

.4 Shape: flat.

.5 Thickness: as indicated.

.2 Foundation and concrete slab: extruded polystyrene board Type 4, rigid closed cell type with high density skin

.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 EFIS insulation: to Section 07 24 00.

.4 Roof insulation: to Section 07 52 00.

2.2 ACCESSORIES

.1 Tape: as recommend by manufacturer.

.2 Fasteners: as recommended by manufacturer.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 WORKMANSHIP

.1 Install insulation after building substrate materials are dry.

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

.3 Fit insulation tight around electrical boxes, plumbing and heating pipes and ducts, around exterior doors and windows and other protrusions.

.4 Keep insulation minimum 25 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN4-S604 type A chimneys and CAN/CGA-B149.1 and CAN/CGA-B149.2 type B and L vents.

.5 Cut and trim insulation neatly to fit spaces. Butt joints tightly, offset vertical joints. Use only insulation boards free from chipped or broken edges. Use largest possible dimensions to reduce number of joints.

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

3.3 EXAMINATION

.1 Examine substrates and immediately inform Contract Administrator in writing of defects.

.2 Prior to commencement of work ensure:

.1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

3.4 RIGID INSULATION INSTALLATION

.1 Fasten insulation in accordance with manufacturer's recommendations.

.2 Apply Tape over all joints to insulation board in accordance with manufacturer's recommendations.

.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 Install on foundation wall with fasteners as recommended by manufacturer.

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 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product Data: Submit manufacturer's printed product literature, specifications and data sheets.

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.

.2 Batt and blanket acoustic mineral fibre: glass fibre to CAN/ULC-S702, Type 1 (friction fit), acoustic batt, thickness 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 and or acoustic 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 25 mm from heat emitting devices such as recessed light fixtures.

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

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM B117-03, Standard Practice for Operating Salt Spray (Fog) Apparatus.

.2 ASTM C144-04, Standard Specification for Aggregate for Masonry Mortar.

.3 ASTM C297/C297M-04, Standard Test Method for Flatwise Tensile Strength of Sandwich Construction.

.4 ASTM C1002-04, Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

.5 ASTM D968-05, Standard Test Methods for Abrasion Resistance of Organic Coatings by the Falling Abrasive.

.6 ASTM D2247-02, Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

.7 ASTM E72-05, Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.

.8 ASTM E96/E96M-04, Standard Test Methods for Water Vapour Transmission of Materials.

.9 ASTM E2098-00, Standard Test Method for Determining Tensile Breaking Strength of Glass Fibre Reinforcing Mesh for Use in Class PB Exterior Insulation and Finish Systems (EIFS), after Exposure to a Sodium Hydroxide Solution.

.10 ASTM E2134-01, Standard Test Method for Evaluating the Tensile-Adhesion Performance of an Exterior Insulation and Finish System (EIFS).

.11 ASTM E2321-03, Standard Practice for Use of Test Methods E 96 for Determining the Water Vapour Transmission (WVT) of Exterior Insulation and Finish Systems (EIFS).

.12 ASTM E2430-05, Standard Specification For Expanded Polystyrene (EPS) Thermal Insulation Boards For Use In Exterior Insulation and Finish Systems (EIFS).

.13 ASTM G154-04, Standard Practice for Operating Fluorescent Light Apparatus UV Exposure of Nonmetallic Materials.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.162-2004, Emulsion Coating for Stucco and Masonry.

.2 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.

.3 Canadian Standards Association (CSA International)

.1 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.1 CSA-A3001-F03, Cementitious Materials for Use in Concrete.

.4 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S134-92 (1998), Standard Method of Fire Test of Exterior Wall Assemblies.

.2 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.3 CAN/ULC-S702-97, Standard for Mineral Fibre Thermal Insulation for Buildings.

.5 EIFS Industry Members Association (EIMA)

.1 EIMA 101.86-95, Standard Test for Impact Resistance

1.2 DEFINITIONS

.1 Exterior Insulation and Finish Systems (EIFS): Exterior assemblies composed of inner layer of board insulation, outer layer composed of glass-fibre-mesh-reinforced base coat applied directly to board insulation, and protective finish coat.

.2 Designation PB: Polymer-based (PB) class of exterior insulation and finish system based on classification developed by EIFS Industry Members Association (EIMA).

.3 System: Refers to Class PB exterior insulation and finish systems.

1.3 SYSTEM DESCRIPTION

.1 System shall meet or exceed the following requirements.

TEST	METHOD	ACCEPTANCE CRITERIA
Abrasion Resistance	ASTM D968	No cracking, checking or loss of film integrity at 528-quarts (500 litres) of sand.
Accelerated Weathering	ASTM G23 or G53	No deleterious effects* after 2,000-hours when viewed under 5x magnification.
Freeze/Thaw Resistance	EIMA 101.01 (Modified ASTM C67)	60 cycles. No deleterious effects.*
Mildew Resistance	ASTM D3273	No growth supported during 28-day exposure period.
Salt Spray Resistance	ASTM B117	No deleterious effects* at 300-hour exposure.
Tensile Adhesion	EIMA 101.03 (Modified ASTM C297)	No failure in the adhesive, base coat or finish coat. Minimum 5 psi (34.5 kPa) tensile strength before and after freeze/thaw and accelerated weathering tests.
Water Penetration	EIMA 101.02 (Modified ASTM E331)	No water penetration beyond the plane of the base coat/EPS board interface after 15-minutes at 6.24 psf (299 Pa), or 20% of positive design wind pressure, whichever is greater.
Water Resistance	ASTM D2247	No deleterious effects* at 14-day exposure.
Impact Resistance	EIMA 101.86	Standard: 25-49 in-lb (2.83-5.54 J)
Wind Load	ASTM E330	Withstand negative and positive wind loads required by applicable building code.

* No deleterious effects: No cracking, checking, crazing, erosion, rusting, blistering, peeling, or delamination.

1.4 DESIGN REQUIREMENTS

.1 Design in accordance with National Building Code – design for increased hourly wind pressure.

1.5 ACTION AND INFORMATIONALSUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit WHMIS MSDS - Material Safety Data Sheets for exterior insulation and finishing materials. Indicate VOC content.

.2 Submit product data sheets for system materials. Include product characteristics, performance criteria, limitations and colours.

.3 Shop Drawings: Indicate wall layout, details, connections, expansion joints, finish system, installation sequence, including interface with doors, windows, air barriers, vapour retarders and other components.

.4 Samples:

.1 Samples for initial selection in the form of manufacturer's color charts and small-scale samples consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of textural choices indicated.

.2 Samples for verification in the form of 610 mm square panels for each finish, color, texture, and pattern specified. Prepare samples using same tools and techniques intended for actual work. Maintain samples at job site until substantial completion.

.5 Certificate of Compliance: System manufacturer's certificate of compliance with EIMA standards.

.6 Installer Certification: Submit certificates signed by system manufacturer certifying that Installers are qualified to install manufacturers system.

.7 Manufacturer's Instructions: provide to indicate special handling criteria, installation sequence, cleaning procedures.

1.6 QUALITY ASSURANCE

.1 Installer Qualifications: Engage experienced installer who has completed systems similar in material, design, and extent to that indicated for Project and with record of successful in-service performance.

.2 Manufacturer's Qualifications: Firm experienced in manufacturing systems similar to those indicated for Project, and that has record of successful in-service performance for minimum of three (3) years.

.3 Fire-Test-Response Characteristics: Provide materials and construction that are identical to those tested with the following fire-test-response characteristics, as determined by testing per ULC test method indicated below, or other testing and inspecting agencies acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting agency.

.1 Flame Spread Rating of Finish Coats: Flame spread 25 or less when tested per ULC 4-S102.

.2 Smoke Development Classification of Finish Coats: 100 or less when tested per ULC 4-S102.

.3 Non-combustibility of Base-coat: when tested per ULC-S114.

.4 Full Scale Fire Tests: Non-combustibility tests per ULC-S101.

.4 Single-Source Responsibility: Obtain materials for system from one source and by single manufacturer, or by manufacturers approved by system manufacturer as compatible with other system components.

.5 Compatibility Requirements: System manufacturer shall certify that system is suitable for use with substrates indicated herein and in Contract documents.

.6 Convene pre-installation meetings: one week prior to beginning work of this Section and on-site installations.

.1 Verify project requirements.

.2 Review installation conditions.

.3 Co-ordinate with other building subtrades.

.4 Review manufacturer's instructions and warranty requirements.

1.7 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 accordance with manufacturer's instructions.

.3 Protect adhesives and base finish materials from freezing.

.4 Store and protect insulation from physical damage and direct exposure to weather.

1.8 PROJECT/SITE ENVIRONMENTAL REQUIREMENTS

.1 Temperature, relative humidity, moisture content.

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

.2 Apply EIFS components at temperatures, relative humidity, and substrate moisture content and substrate temperature in accordance with manufacturer's written instructions.

.3 Maintain ambient temperature above 4 degrees C during adhesive application and until cured minimum 24 hours.

.4 Maintain ambient temperature above 4 degrees C during basecoat application and until cured minimum 24 hours.

.5 Maintain ambient temperature above 4 degrees C during finish coat application 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.

1.9 WARRANTY

.1 Contractor warrants that exterior insulation and finish system will not leak or delaminate in accordance with General Conditions (GC), but for 60 months.

Part 2 Products

2.1 MANUFACTURERS

.1 Manufacturers: Subject to compliance with requirements, products by the following manufacturers are acceptable. It is Contractor's responsibility to provide only products compatible with adjacent materials in assembly.

.1 Dryvit Systems, Inc.

.2 Akrilon Industries Inc.

.3 Senergy, Inc.

.4 Sto Corp.

2.2 MATERIALS

.1 Compatibility: Provide adhesive, board insulation, reinforcing fabrics, base and finish coat materials, sealants, and accessories that are compatible with one another and approved for use by system manufacturer.

.2 Primer: Manufacturer's recommended primer.

.3 Adhesive: Manufacturer's recommended adhesive.

.4 Portland Cement: ASTM C150 Type I or Type II.

.5 Expanded Polystyrene Foam Plastic Board Insulation: ASTM C578 Type I; Rigid cellular thermal insulation formed by expansion of polystyrene resin beads or granules in closed mould, approved by system manufacturer for material qualities including corner squareness, other dimensional tolerances, and the following:

.1 Provide insulation in boards not more than 610 mm x 1219 mm and in thickness indicated, but not less than that allowed by system manufacturer, nor more than 102 mm.

.6 Reinforcing Fabric: ASTM D578, alkali-resistant glass-fibre fabric manufactured especially for use in EIFS.

.1 Standard Reinforcing Fabric Mesh: Minimum 136 g/sq. m.

.2 Corner Reinforcing Fabric Mesh: Minimum 350 g/sq. m

.3 High Impact Reinforcing Fabric Mesh: Minimum 500 g/sq. m.

.4 Strip Reinforcing Fabric: Minimum 3127g/sq. m.

.7 Base Coat: Manufacturer's recommended one component base coat.

.8 Surface Conditioner: Manufacturer's recommended surface conditioner, tinted to match finish coat color.

.9 Finish Coat: Manufacturer's recommended factory-mixed, textured, integrally coloured finish coating.

.1 Colour: Selected at time of submittals from manufacturer's standard color chart.

.2 Finish Texture: Selected at time of submittals from manufacturer's full range of standard textures.

.10 Clear Sealer Topcoating: Clear acrylic coating.

.11 Trim Accessories: As required by system manufacturer.

.1 Galvanized Steel: ASTM A653, G60 coating minimum.

.12 Water: Potable, clean, fresh, and free from oil, acid, organic matter or other deleterious substances.

.13 Mechanical Fastener Assemblies: System manufacturer's standard corrosion-resistant fastener assemblies, consisting of thermal cap, system manufacturer's standard washer and shaft attachments, and fasteners.

.1 Select fasteners for pullout, tensile, and shear strength properties required to resist design loads of application indicated, capable of pulling fastener head below surface of insulation board.

.14 Sealants: Provide system manufacturer's recommended chemically curing, elastomeric sealant that is compatible with joint fillers, joint substrates, and other related materials and complies with requirements of Section 07 92 00 Joint Sealants.

2.3 MIXING

.1 Mix materials in accordance with manufacturer's instructions, using only manufacturer-approved materials in the instructed quantities. Use only freshly mixed materials. Apply materials within the time prescribed by the manufacturer and without re-tempering, unless specifically approved.

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. Substrate tolerance not greater than 6 mm in 2,500 mm design deflection no greater than 1/240 in accordance with manufacturer's written instructions.

.2 Report deviations from specified requirements or other conditions that might adversely affect EIFS installation in writing to Contract Administrator.

.3 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.

.4 Protect top of parapet walls, and openings until flashings and trim are installed.

.2 Surface preparation: Prepare and clean substrates to comply with system manufacturer's requirements to obtain optimum bond between substrate and adhesive for insulation.

.1 Apply primer-sealer over substrates where required by system manufacturer for improving adhesion or for protecting substrates from premature degradation.

.2 Clean substrates, removing contamination such as oil, form-release agents, waxes, paint, dust, and dirt. Use methods appropriate to type of substrate and contamination encountered, such as scrubbing with detergents, acid etching, scarification, and sandblasting.

.3 Concrete Substrates; Remove fins and projections. Fill voids and even out irregularities with paste of neat cement grout or, if recommended by system manufacturer, with adhesive or base coat material.

.4 Masonry Substrates: Where other than flush joints are encountered, apply levelling course to fill joints flush.

.5 Surface Levelling: Where required, or where specified, in order to produce uniform planar substrate for application of insulation board, apply adhesive mixture as levelling coat to true the surface.

3.3 INSTALLATION OF INSULATION

.1 General: Comply with manufacturer's current published instructions for installation of system as applicable to each type of substrate.

.2 Apply trim accessories at perimeter of system, at expansion joints, and elsewhere, as indicated on Contract documents. Use drip screed at bottom edge of system unless otherwise indicated. Use casing beads at other locations.

.3 Attach insulation with adhesive unless mechanical attachment is recommended by manufacturer, to comply with the following requirements:

.1 Apply adhesive to insulation by notched trowel method in manner that results in adhesive coating entire surface of gypsum sheathing once insulation is adhered to sheathing, unless system manufacturer's instructions specify use of primer-sealer in combination with ribbon and dab method.

.2 Allow adhered insulation to remain undisturbed for period prescribed by system manufacturer, but not less than 24 hours, prior to beginning rasping and sanding insulation or application of base coat and reinforcing fabric.

.3 Apply insulation boards over dry substrates in courses with long edges oriented horizontally. Begin first course from drip screed and work upward. Work from perimeter casing beads toward interior of panels when possible. Apply thin coat of adhesive to edges of insulation before inserting into trim accessories.

.4 Stagger vertical joints in successive courses to produce running bond pattern. Locate joints so that no piece of insulation is less than 305 mm wide or 152 mm high. Offset joints at least 152 mm from corners of windows and door openings.

.1 Offset joints of insulation at least 102 mm from joints in sheathing.

.2 Offset joints of insulation at least 102 mm from decorative grooves (false joints).

.5 Interlock ends at internal and external corners.

.6 Abut boards tightly at joints within and between each course to produce flush, continuously even surfaces without gaps or raised edges between insulation boards. If gaps occur, fill with insulation cut to fit gaps exactly; insert without use of adhesive.

.7 Cut insulation to fit openings, corners, and projections precisely and to produce edges and shapes conforming to details indicated.

.8 Rasp or sand flush entire surface of insulation to remove irregularities projecting more than 1.6 mm from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1.6 mm.

.9 Cut grooves, rabbets, and other features in outside face of insulation with high-speed router and bit configured to produce grooves, rabbets, and other features that conform accurately to profiles and locations indicated. Do not reduce insulation thickness at features to less than 19 mm.

.10 Interrupt insulation where expansion joints are indicated in substrates behind EIFS.

.11 Form joints for sealant application with back-to-back casing beads for joints within system and with perimeter casing beads at dissimilar adjoining surfaces. Make gaps between casing beads and between perimeter casing beads and adjoining surfaces of width indicated.

.12 Treat exposed edges of insulation board, including those forming substrates of sealed joints within system or between system and other work, by encapsulating with base coat, reinforcing fabric, and finish coat, unless otherwise indicated.

3.4 BASE COAT

.1 General: Apply base coat to exposed surfaces of insulation in minimum overall thickness specified by system manufacturer, but no less than 1.6 mm when dry.

.2 Embed reinforcing fabrics in wet base coat to produce wrinkle-free installation with fabric continuous or lapped at corners and lapped or otherwise treated at joints to comply with system manufacturer's requirements.

.1 Completely embed fabric, applying additional base coat material if necessary, so that reinforcing fabric pattern is not visible.

.2 Use High Impact Reinforcing fabric at all locations below building elevation 102 600, and extend to nearest horizontal control joint above that elevation.

.3 Additional Strip Reinforcing Fabric: Apply strip reinforcing fabric around openings extending 102 mm beyond perimeter.

.1 Apply additional 203 mm x 406 mm strip reinforcing fabric diagonally at corners of openings (re-entrant corners).

.2 Apply 203 mm wide strip reinforcing at both inside and outside corners unless base layer of fabric is lapped at least 102 mm on each side of corners.

.3 At decorative grooves (false joints), apply strip reinforcing at least 203 mm wide.

.4 Embed strip reinforcing fabric in base coat before applying first layer of reinforcing fabric.

3.5 FINISH COAT

.1 Apply manufacturer's recommended surface conditioner to surfaces to receive finish coats when required.

.2 Apply finish coat over dry base coat in thickness required by system manufacturer to produce uniform finish of texture and colour matching approved samples.

3.6 CONTROL JOINTS

.1 Provide V-joints cut into outer surface of insulation to accommodate movement in finish coats and changes in colours and textures of finish coat.

.2 Provide control joints at each colour change and as indicated on drawings.

3.7 INSTALLATION OF JOINT SEALANTS

.1 General: Prepare joints and apply sealants, of type and at locations indicated, to comply with applicable requirements of Section 07 92 00, Joint Sealants.

.2 Clean surfaces to receive sealants to comply with indicated requirements and system manufacturer's recommendations.

.3 Apply primer recommended by sealant manufacturer for surfaces to be sealed.

.4 Install sealant backing to control depth and configuration of sealant joint and to prevent sealant from adhering to back of joint.

.5 Apply masking tape to protect areas adjacent to sealant joints. Remove tape immediately after tooling joints without disturbing joint seal.

3.8 CLEANING

.1 Clean finished surfaces in a timely manner if required in order to prevent permanent discoloration.

.2 Remove accumulated dirt from finished surfaces prior to substantial completion but after completion of adjacent abutting horizontal surface construction (such as pavements) and after establishment of adjacent turf.

.3 If discoloration or contamination occurs and cannot be removed, or if system suffers damage prior to substantial completion, then restore, or remove and replace, affected portions (reworking entire planar surfaces as necessary to conceal reworked area), using manufacturer's recommended restoration coatings or new materials meeting the requirements of this specification.

.4 Upon completion of installation, remove excess materials, droppings and debris, tools and equipment barriers. Clean adjacent surfaces.

3.9 PROTECTION

.1 Remove temporary covering and protection of other work. Promptly remove coating materials from window and door frames and other surfaces outside areas indicated to receive system coatings.

.2 Provide final protection and maintain conditions in manner acceptable to Installer and system manufacturer that ensures system's being without damage or deterioration at time of substantial completion.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit proof of manufacturer's CCMC Listing and listing number to Contract Administrator.

.2 Submit product data.

.1 Product characteristics.

.2 Performance criteria.

.3 Limitations.

Part 2 Products

2.1 SHEET VAPOUR BARRIER

.1 Polyethylene film: to CAN/CGSB-51.3

.2 10 mil thickness for floor slab installations.

2.2 ACCESSORIES

.1 Joint sealing tape: air resistant pressure sensitive adhesive tape, cloth fabric duct tape type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.

.2 Sealant: To Section 07 92 00 - Joint Sealants.

Part 3 Execution

3.1 INSTALLATION

.1 Ensure services are installed and inspected prior to installation of retarder.

.2 Install sheet vapour retarder on underside of floor slab.

.3 Use sheets of largest practical size to minimize joints.

.4 Inspect for continuity. Repair punctures and tears with sealing tape before work is concealed.

3.2 EXTERIOR SURFACE OPENINGS

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

3.3 PERIMETER SEALS

.1 Seal perimeter of sheet vapour barrier as follows:

.1 Apply continuous bead of sealant to substrate at perimeter of sheets.

.2 Lap sheet over sealant and press into sealant bead.

.3 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

3.4 LAP JOINT SEALS

.1 Seal lap joints of sheet vapour barrier as follows:

.1 Attach first sheet to substrate.

.2 Apply continuous bead of sealant over solid backing at joint.

.3 Lap adjoining sheet minimum 150 mm and press into sealant bead.

.4 Install staples through lapped sheets at sealant bead into wood substrate.

.5 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 NBCC 2005; Part 5 - Environmental Separation

1.2 SUBMITTALS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures. Provide drawings of special joint conditions.

.1 Provide drawings of special joint conditions.

.2 Submit manufacturer's product data sheets in accordance with Section 01 33 00 - Submittal Procedures.

.3 Submit manufacturer's installation instructions in accordance with Section 01 33 00 - Submittal Procedures.

1.3 QUALITY ASSURANCE

.1 Perform Work in accordance with National Air Barrier Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

.2 Maintain one copy of documents on site.

1.4 QUALIFICATIONS

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

.2 Applicator: Company who is currently licensed by National Air Barrier Association, must maintain their license throughout the duration of the project.

1.5 MOCK-UP

.1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct typical exterior wall for exterior wall finish of masonry, 3 m long by 1.8 m wide, incorporating window and frame and sill, insulation, building corner condition, junction with roof system and; illustrating materials interface and seals.

.3 Mock-up may not remain as part of the Work.

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

1.6 PRE- INSTALLATION MEETINGS

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

1.7 CO-ORDINATION

.1 Co-ordinate with roofs air/vapour barriers to insure a complete and compatible system of joining the two systems.

1.8 DELIVERY, STORAGE AND HANDLING

.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.

1.9 PROJECT ENVIRONMENTAL REQUIREMENTS

.1 Do not install solvent curing sealants or vapour release adhesive materials in enclosed spaces without ventilation.

.2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.

.3 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.

1.10 SEQUENCING

.1 Sequence work to permit installation of materials in conjunction with related materials and seals.

1.11 WARRANTY

.1 Warranty: Include coverage of installed sealant and sheet materials which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

Part 2 Products

2.1 SHEET MATERIALS

.1 Air and vapour barrier insulation adhesive: trowelled or sprayed solvent type, synthetic rubber based.

.1 Acceptable material:

.1 Bakor Air-Bloc 21 or Air-Bloc 21S.

.2 IKO Aquabarrier II

.3 Soprema Colphene LM liquid membrane 200

.2 Self-adhesive air and vapour barrier membrane: self-adhered membrane consisting of an SBS rubberized asphalt compound integrally laminated to a cross laminated polyethylene film.

.1 Thickness: 1.0 mm.

.2 Tensile strength membrane ASTM D412: 3.4 MPa minimum.

.3 Tensile strength film ASTM D412: 40 MPa minimum.

.4 Acceptable material:

.1 Bakor Blueskin SA.

.2 IKO Aquabarrier AVB

.3 Soprema Superstick 1100

.3 Thru wall flashing: self-adhered membrane consisting of an SBS rubberized asphalt compound integrally laminated to a cross laminated polyethylene film.

.1 Tensile strength membrane ASTM D412: 5520 kPa minimum.

.2 Tensile strength film ASTM D412: 34500 kPa minimum.

.3 Acceptable material:

.1 Bakor TWF.

.2 IKO Aquabarrier AVB

.3 Soprema Superstick 1100

.4 Transition membrane: compatible with wall and roof air/vapour barriers.

.1 Self-adhered membrane consisting of an SBS rubberized asphalt compound integrally laminated to a cross laminated polyethylene film

.2 Acceptable material:

.1 Bakor Blueskin SA

.2 IKO Aquabarrier AVB

.3 Soprema Superstick 1100

2.2 SEALANTS

.1 Sealants in accordance with Section 07 92 00 - Joint Sealing.

.2 Butyl Sealant Type A : CGSB 19-GP-14M, butyl rubber base, single component, solvent release, non-skinning, Shore "A" Hardness Range of [10 to 30.

.3 Sealant Type B: CAN/CGSB-19.13M, single component, chemical curing, capable of continuous water immersion, non-sagging type, Shore "A" Hardness Range of 20 to 35.

.4 Primer: Recommended by sealant manufacturer. Appropriate to application.

.5 Substrate Cleaner: Non-corrosive type recommended by sealant manufacturer, compatible with adjacent materials.

2.3 ACCESSORIES

.1 Thinner and cleaner for Butyl, Neoprene Sheet: As recommended by sheet material manufacturer.

.2 Attachments: Galvanized steel bars and anchors.

Part 3 Execution

3.1 EXAMINATION

.1 Verify that surfaces and conditions are ready to accept the Work of this section.

.2 Ensure all surfaces are clean, dry, sound, smooth, continuous and comply with air barrier manufacturer's requirements.

.3 Report any unsatisfactory conditions to the Contract Administrator 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 membrane and primer.

.4 Ensure metal closures are free of sharp edges and burrs.

.5 Prime substrate surfaces to receive adhesive and sealants in accordance with manufacturer's instructions.

3.3 INSTALLATION

.1 Install air/vapour barrier materials in accordance with manufacturer's instructions.

.2 Install transition material and primer to provide a continuous seal between wall and roof air/vapour barrier.

.3 Install sealant materials in accordance with manufacturer's instructions.

.4 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

3.4 PROTECTION OF WORK

.1 Protect finished Work in accordance with Section 01 61 00 - Common Product Requirements.

.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 Wall Air/Vapour Barrier Over Outer Surface of Masonry: Trowel or spray seal adhesive for membrane to suit application of insulation and exterior wall finish.

.2 Window / Door Frame Perimeter: Lap sheet seal from wall air seal surface with 75 mm of full contact over firm bearing to window frame with 25 mm of full contact. Edge seal with sealant.

.3 Wall and Roof Junction: Lap transition material from wall seal material with 150 mm of contact over firm bearing to roof air seal membrane with 100 mm of full contact.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

.1 Product data: submit manufacturer's printed product literature, specifications and data.

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

.3 Samples: Submit duplicate samples of siding material, of colour and profile specified.

.4 Manufacturer's Instructions: Submit manufacturer's installation instructions.

1.2 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 SIDING AND COMPONENTS

.1 Factory preformed steel sheet, concealed fastener with factory applied finish.

.1 Metal Panel Band Siding: Vic-west AD 300 SR, 22 gauge.

.2 Colour: Dark Red QC16064 Weather-X series.

2.2 ACCESSORIES

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

2.3 FASTENERS

.1 Screws: ANSI B18.6.4, in accordance with manufacturer’s recommendations to meet the load requirements and to maintain a weather resistant installation. Purpose made stainless steel

2.4 CAULKING

.1 Sealants: to Section 07 92 00.

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 siding in accordance with manufacturer's written instructions.

.2 Install continuous starter strips, inside and outside corners, edgings, sill and window/door opening flashings as indicated.

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

.4 Maintain joints in siding, 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 00 - Joint Sealants.

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 Roofing and sheet metal work will be performed in conformance with the roofing manufacturer's written recommendations as well as the requirements of the ULC laboratories Class ABC, Factory Mutual 1-90 Classification, local association member of CRCA and to CRCA Standards.

.2 Canadian Roofing Contractors Association (CRCA)

.1 CRCA Roofing Specifications Manual-1997.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Convene pre-installation meeting one week prior to beginning Work, with roofing contractor's representative and Owner's representative:

.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.

1.3 COMPATIBILITY

.1 All waterproofing materials will be provided by the same manufacturer.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit a document issued by the CSA certifying that the roofing system offered meets the requirements of CAN/ULC-S107-03 "Standard Methods of Fire Tests of Roof Coverings Class A BC.

.3 Product Data:

.1 Submit two copies of most recent technical roofing components data sheets describing materials' physical properties and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit two copies of WHMIS MSDS and indicate VOC content for:
.1 Primers.
.2 Asphalt.
.3 Sealers.
.4 Filter fabric.

.4 Submit shop drawings:

.1 Indicate flashing, control joints, tapered insulation details.
.2 Provide layout for tapered insulation.
.3 Locate and identify sloped insulation blocks.

.5 Submit manufacturer's Installation Instructions.

1.5 QUALITY ASSURANCE

.1 Roofing contractors and sub-contractors must, when performing work, possess a roofing contractor operating license.

.2 Roofing contractors and sub-contractors must also be registered with SOPREMA's PAQ + S program and provide the Contract Administrator with a SOPREMA certificate to this effect before beginning any roofing work.

.3 Only qualified, certified installers employed by a company with the appropriate equipment may execute the roofing work.

.4 Roofing contractors and sub-contractors must also be members of local association of CRCA and provide the Contract Administrator with a certificate to this effect before beginning any roofing work.

1.6 MANUFACTURER'S REPRESENTATIVE

.1 The roofing product manufacturer can delegate a representative to visit the work site at the start of roofing installation.

.2 The contractor must at all times enable and facilitate access to the work site by said representative.

1.7 INSPECTION

.1 Roofing installation inspection will be done by the roof Contract Administrator chosen by the Contract Administrator.

1.8 FIRE PROTECTION

.1 Prior to the start of work, conduct a site inspection to establish safe working practices and make sure that all procedures and proposed changes are approved to minimize the risk of fires.

.2 Respect safety measures described in the SOPREMA Specifications Manual as well as local association CRCA recommendations.

.3 At the end of each workday, use a heat detector gun to spot any smouldering or concealed fire. Job planning must be organized to ensure workers are still on location at least one hour after torch application.

.4 Never apply the torch directly to old and wood surfaces.

.5 Throughout roofing installation, maintain a clean site and have one approved ABC fire extinguisher within 6 metres of each roofing torch. Respect all safety measures described in technical data sheets. Torches must never be placed near combustible or flammable products. Torches should never be used where the flame is not visible or cannot be easily controlled.

1.9 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.

.2 All materials will be delivered and stored in conformance with the requirements described in the SOPREMA Manual; they must remain in their original packaging, displaying the manufacturer's name, product name, weight, and reference standards, as well as all other indications or references considered standard.

.3 At all times, materials will be adequately protected and stored in a dry and properly ventilated area, away from any welding flame or spark and sheltered from the elements or any harmful substance. Only materials destined for same-day use can be removed from this storage area. In cold weather, these materials should be stored in a heated area at a minimum temperature of $+10^0$C and removed prior to application. If rolls cannot be stored in a heated environment, they may be pre-conditioned before installation. For precise description, please consult SOPREMA'S "Roofers' Guide" on membrane application procedures.

.4 Store adhesives and emulsion-based waterproofing mastics at a minimum $+5^0$C. Store adhesives and solvent-based mastics at sufficient temperatures to ensure ease of application.

.5 Materials delivered in rolls will be carefully stored upright; flashing will be stored to avoid creasing, buckling, scratches or any other possible damage.

.6 Avoid material overloads which may affect the structural integrity of specific roof areas.

1.10 FIELD CONDITIONS

.1 Ambient Conditions: install roofing in temperature range as indicated by manufacturer.

.2 Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

1.11 WARRANTY

.1 The membrane manufacturer will issue a written document in the owner's name, valid for a Ten year period, saying that it will repair any leaks in the roofing membrane to restore the roofing system to a dry and watertight condition, to the extent that membrane manufacturing or installation defects caused water infiltration. The warranty must cover for the entire cost of the repair(s) during the entire warranty period. The warranty must be transferable, and non-prorated at no extra cost, to subsequent building owners. The contractor will issue a written and signed document in the owner's name, certifying that the work executed will remain in place and free of any workmanship defect for a period of five years, starting from the date of acceptance.

Part 2 Products

2.1 ACCEPTABLE MANUFACTURER'S

.1 Soprema is listed; other manufacture's similar systems will be considered, submit for approval minimum10 days before Bids close.

2.2 PERFORMANCE CRITERIA

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

.2 Roofing System: to CSA A123.21 for wind uplift resistance.

2.3 DECK PRIMER AND CAP SHEET PRIMER

.1 Composed of SBS synthetic rubber, volatile solvents, adhesive enhancing resins and volatile solvent used to prime porous substrates and non-porous substrates such as wood, concrete or metal to enhance the adhesion of self-adhesive membranes at temperatures above -10°C.

.2 Acceptable material: Elastocol Stick by Soprema

2.4 VAPOUR RETARDER

.1 Self-adhesive Air/Vapour Barrier: composed of bitumen modified with thermoplastic polymers and high-density polyethylene film. The self-adhesive underface is covered with a silicone release sheet. Water vapour permeability: 0.92 ng/Pa.s.m2 (0.016 Perm)

.1 Acceptable material: Sopravap'r by Soprema

.2 Vapour retarder continuity strip: waterproofing membrane with composite (non-woven polyester and fibreglass grid), reinforced and elastomeric bitumen. The upper surface is sanded and the underface is self-adhesive.

.1 Acceptable material: Sopraflash Stick by Soprema.

2.5 POLYISOCYANURATE INSULATION

.1 To CAN/ULC-S704, closed-cell polyisocyanurate foam core integrally laminated between two heavy coated-glass facers, thickness as indicated, RSI as indicated.

.1 Acceptable material: Colgrip A by Soprema

2.6 MEMBRANE SYSTEM

.1 Colvent system (semi-independent self-adhesive base sheet: Waterproofing system composed of SBS modified bitumen membranes with a semi-independent, self-adhesive base sheet and a SEBS self-adhered cap sheet. The cap sheet underface (self-adhesive) is covered by a removable protective film and the top face is protected by coloured granules.

.1	System properties:	Traffic only	MD	XD
	.1	Strain energy (kN/m)	9.4	9.2

.2	Breaking strength (N/5 cm)	19.2	16.3
.3	Ultimate elongation (%)	54	62
.4	Cold bending at –30°C	No cracking	
.5	Softening point	≥ 110°C	
.6	Static puncture (N)	380	

.2 Prefabricated membrane, complies with CAN/CGSB 37.56-M (9th draft)

.3 Acceptable materials:

.1 Base sheet: Colvent Base 820 by Soprema.

.2 Cap sheet: Colphene HR GR by Soprema

.2 UPSTAND SYSTEM. (self adhesive base and cap)

.1 Description: Membrane flashing shall be two plies or reinforced modified bitumen membrane and the base shall be self-adhesive. The top surface of the base sheet is, sanded and the bottom surface is protected by silicone release paper. The cap sheet underface (self-adhesive) is covered by a removable protective film. The cap top face is protected by (coloured granules). Cap sheet end laps shall be adhered, as per manufactures recommendation.

.2 Prefabricated membrane, complies with CAN/CGSB 37.56-m

.3 Specified Products:

.1 Base sheet flashing membrane, (Sopraflash Stick) by Soprema.

.2 Cap sheet flashing membrane, (Colphene HR GR) by Soprema.

.3 Adhesive for Cap flashing, (Colply Trowel Grade Adhesive) by Soprema.

2.7 WALKWAYS

.1 Walkways membrane: fibreglass reinforced SBS modified bitumem 5 mm thick

2.8 ADHESIVES, (Insulation Adhesive).

.1 Description: A highly elastomeric, two component, one step all purpose adhesive that contains no solvents and sets in minutes.

.2 Specified Product: Duotack by Soprema Inc

2.9 FASTENERS (at Metal Deck roof)

.1 Membrane fasteners

.1 Description: #14 Phillips pre-assembled mechanical fasteners made of case-hardened carbon steel with a rust preventive coating that comply with FMR approval standards. 50 mm. diameter, barbed stress plates that comply with the CSA B35.3 and FM 4470 approval standard.

.2 Acceptable material: Soprafix Fasteners/Plates by Soprema as approved by FM for the specified system.

.2 Insulation fasteners: as approved by FM for the specified system.

2.10 ACCESSORIES

.1 Cover Strip: Description: Membrane strip made of SBS modified bitumen and composite elastomeric bitumen reinforcement. The strip ensures water-tightness in the end laps.

Specified product: Sopralap or Sopraflash stick by Soprema.

.2 Bitumen, Waterproofing mastic, Pitch pocket filler, Sealing product: manufacture's recommended products for application.

.3 Sealants: Caulking - see Section 07 92 00 - Joint Sealants

Part 3 Execution

3.1 QUALITY OF WORK

.1 Do examination, preparation and roofing Work in accordance with Roofing Manufacturer's Specification Manual and CRCA Roofing Specification Manual, Provincial Roofing Association Manual, particularly for fire safety precautions.

3.2 SURFACE EXAMINATION AND PREPARATION

.1 Surface examination and preparation must be completed in conformance with recommendations in the SOPREMA Specifications Manual, particularly for fire safety precautions.

.2 Before roofing work begins, the Contract Administrator and roofing foreman will inspect and approve deck conditions (including slopes and wood blocking) as well as upstands and parapets, construction joints, roof drains, plumbing vents, ventilation outlets and others. If necessary, a non-conformity notice will be issued to the Contractor so that required corrections can be made. The start of roofing work will mean roofing conditions are acceptable for work completion.

.3 Do not begin any work before surfaces are smooth, dry, and free of ice and debris. Use of calcium or salt is forbidden for ice or snow removal.

.4 Be sure plumbing, carpentry and all other work has been duly completed.

.5 No materials will be installed during rain or snowfall.

3.3 SITE PROTECTION

.1 Protect finished work to avoid damage during roof installation and material transportation. Install protective boardwalks over installed roofing materials to enable passage of people and products. Assume full responsibility for any damage.

3.4 PRIMING CONCRETE

.1 Apply primer to concrete substrate at the rate recommended by manufacturer.

3.5 VAPOUR RETARDER SELF ADHESIVE

.1 Beginning at the bottom of the slope, without adhering the membrane, unroll onto the substrate for alignment. Do not immediately remove the silicone release sheet.

.2 Align the roll parallel to the corrugations of the steel deck. Make sure the membrane overlaps are supported along their entire length.

.3 Peel back one end of the silicone release sheet and adhere this part of the membrane to the substrate. Peel back the remaining release sheet at a 45º angle to avoid wrinkles in the membrane.

.4 If the membrane is not properly aligned, do not try to adjust it. Instead, cut the roll and start again, making sure that it is properly aligned and that it overlaps the end of the misaligned piece by 150 mm.

.5 Overlap adjacent membranes by 75 mm. Overlap end laps by 150 mm. Stagger end laps by at least 300 mm.

.6 Install vapour retarder continuity strip to manufacturer's written instructions.

3.6 INSULATION APPLICATION

.1 Attach insulation with adhesives in conformance with manufacturer's recommendations, follow manufacturers recommendations at no less than 19-mm bead at 305-mm on center. Allow fifty percent more at all perimeters and corners.

.2 All vertical joints between level boards and sloped modules, two rows of insulation board will be staggered.

.1 Install only as much insulation as can be covered in the same day.

.3 Tapered insulation application: Install tapered insulation as first insulation layer, in accordance with shop drawings. Stagger joints between layers 150 mm minimum.

3.7 INSTALLATION OF INSULATION OVERLAY

.1 Follow same recommendation from 3.6.1

.2 All vertical joints between boards and insulation will be staggered.

.3 All the panels must be in perfect connection, without any significant differences in level, and must be adhered on all their surfaces completely.

.4 Apply only as many boards as can be covered in the same day.

.5 Around the drain, cut out a slight slope of 0 to 10 mm. in a 600 mm. Radius.

3.8 INSTALLATION OF SELF-ADHESIVE SEMI-ADHERED BASE SHEET (COLVENT SYSTEM)

.1 Beginning at the drains and perpendicular to the slope, install the base sheet membrane without adhering in parallel strips.

.2 Each strip should overlap the preceding strip by 75 mm. along the side joint (use the blue line to facilitate alignment) and by 25 mm. at the ends. Because of the nature of this system, base sheet membrane joints can be aligned (no staggering) to facilitate the installation of the reinforcing band.

.3 Let the membrane relax at least 15 minutes before installing it, or burn the plastic film in a zig-zag fashion using a propane torch to relax it. In cold weather, use the second method.

.4 Peel back the silicone release paper to adhere the membrane to the substrate. Use a broom or brush to apply even pressure and ensure good adherence.

.5 Remove the paper protecting the selvedge [then heat the side joints. Seal the joints using a trowel. A bead of molten bitumen should appear along the joint to ensure a perfect seal].

.6 Seal the end joints by welding a 300 mm. wide protection band centred on the joint.

.7 For flame-free installations, seal the side joints and install a protection band over the end joints using manufactures adhesive trowel grade.

.8 Avoid creating wrinkles, blisters, and fishmouths.

.9 The base sheet membrane should end over the cant strip or at the edge of the substrate.

.10 Install screws and washers every 300 mm .c/c along the edge of the substrate.

3.9 INSTALLATION OF REINFORCED GUSSETS

.1 Install gussets at every angle, on inside and outside corners.

3.10 BASE SHEET FLASHING INSTALLATION (SELF ADHERED)

.1 Apply base sheet flashing only after primer coat is dry.

.2 Install flashing to manufacture’s written instructions.

.3 Cut off corners at end laps to be covered by the next roll.

.4 Install a reinforcing gusset in all inside and outside corners.

.5 Always seal overlaps at the end of the workday.

3.11 INSTALLATION OF REINFORCEMENTS

.1 Install reinforcements specified for various roof surfaces according to illustrations found in SOPREMA’s technical data.

3.12 ROOFING CAP SHEET INSTALLATION (SELF-ADHESIVE)

.1 After priming and ensuring the substrate has no deficiencies, proceed with installation of the cap sheet.

.2 Apply primer to the area to be covered. 100% coverage.

.3 Unroll cap sheet at drain. Carefully align first side lap (parallel to roof edge).

.4 In cool temperatures, let the membrane relax at least 15 minutes before attaching.

.5 Each strip should overlap the preceding strip by 75 mm. along the side joint and 150 mm at the ends. At end laps, angle-cut the corners that will be covered by the following roll.

.6 Stagger end joints by a minimum of 300 mm.

.7 Peel back the silicone release sheet and adhere the membrane to the substrate. Use a roller to ensure good contact. Roller specified by the manufacturer MUST be used.

.8 Remove the protective strip on the side lap and apply primer.

.9 Using a notched 5 mm steel trowel, apply trowel grade adhesive on the first 125 mm. of the end laps.

.10 Finish by heat-welding the last 25 mm. to the existing surface with an electric hot-air welder and roller. Provide a smooth application, free of wrinkles, fishmouths or air pockets.

.11 Complete installation by repeating steps 1 to 10.

3.13 INSTALLATION OF CAP SHEETS ON UPSTANDS AND PARAPETS (ADHESIVE-BONDED)

.1 This cap sheet must be installed in one-metre-wide strips. The side joints must overlap by 100 mm. and must be staggered by at least 100 mm. with respect to the joints of the cap sheet on the field surface to avoid areas of excessive membrane thickness. The overlaps on the field surface must be 50 mm. wider than those of the base sheet membrane on the upstands and parapets. At end laps, angle-cut the corners that will be covered by the following roll.

.2 Use a chalk line to draw a straight line on the field surface 150 mm. from the upstands and parapets.

.3 This cap sheet must be cold-bonded directly to the base sheet membrane, proceeding from bottom to top, using adhesive trowel grade. Use a 5 mm. notched steel trowel to apply 6 to 8 litres/10 m^2 of adhesive. Once the base sheet membrane has been placed on the adhesive, use a roller to apply even pressure over the entire surface to ensure total, uniform adherence. Hand pressure will not be accepted.

3.14 WALKWAYS

.1 Walkway sheet application, location and size as indicated on the drawings for walkways:

- .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 along total length of rail guard and ladder details, mechanical equipment, and as indicated extending a minimum of 1 meter.

3.15 EXPANSION JOINTS

.1 Install expansion joints in conformance with Soprema Detail SOP.

3.16 FIELD QUALITY CONTROL

.1 Inspections:

.1 Inspection and testing of roofing application will be carried out by testing laboratory designated by Owner's Representative.

.2 Costs of tests will be paid under Allowances.

3.17 CLEANING

.1 Repair or replace defaced or disfigured finishes caused by work of this section.

3.18 SLOPES

.1 Flat roof to be typically 1/2% slope or as indicated

.2 Parapet, back slopes etc to be 2% slope or as indicated

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, Pre-finished, 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 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00.

.2 Submit shop drawings.

.1 Provide details for expansion crimp flashing.

.3 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 pre-finished 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 00.

.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: Screws: ANSI B18.6.4. Purpose made stainless steel with coloured caps and neoprene washers of length and thickness suitable for metal flashing application.

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 0.76 mm thick galvanized, pre-finished steel sheet.

2.6 REGLETS AND CAP FLASHINGS

.1 Form reglets metal cap flashing of 0.76 mm thick prefinished 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 SCUPPERS

.1 Form scuppers from 0.762 mm thick pre-finished steel sheet metal.

.2 Sizes and profiles as indicated.

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 SCUPPERS

.1 Install scuppers and secure to building as indicated. Seal joints watertight.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Underwriter's Laboratories of Canada (ULC)

.1 CAN/ULC-S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

.2 CAN/ULC-S102, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.2 QUALITY ASSURANCE

.1 Apply fireproofing in accordance with the printed instructions of the material manufacturer.

.2 Applicator: fully licensed and approved by manufacturer of fireproofing materials.

.3 Materials and applied systems shall have full acceptance of authority having jurisdiction.

1.3 TEST REPORTS

.1 Submit product data including certified copies of test reports verifying fireproofing applied to substrate as constructed on project will meet or exceed requirements of Specification.

.2 Submit test results in accordance with CAN/ULC-S101 for fire endurance and CAN/ULC-S102 for surface burning characteristics.

.3 For assemblies not tested and rated, submit proposals based on related designs using accepted fireproofing design criteria.

1.4 ACTION AND INFORMATIONALSUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product data: submit product data for each material used on project, indicating manufacturer, fire ratings, substrate preparation and installation instructions.

.3 Samples: submit duplicate 300 x 300 mm size sample of intumescent fireproofing with decorative protective for approval of colour.

1.5 PROTECTION

.1 At outside temperatures less than 5°C, ensure that a 5°C air and substrate temperature is maintained during and for 24 h after application.

.2 Ensure that natural ventilation to properly dry the fireproofing during and subsequent to its application is provided. In enclosed areas lacking openings for natural ventilation, ensure that interior air is circulated and exhausted to the outside.

.3 Provide temporary enclosures to prevent spray from contaminating air beyond application area.

.4 Protect adjacent surfaces and equipment from damage by over spray, fall-out, and dusting of fireproofing materials.

Part 2 Products

2.1 MATERIALS

.1 Intumescent fireproofing: ULC certified water-based, thin film, fire resistive coating system, qualified for use in ULC Designs, and acceptable to authorities having jurisdiction.

.1 Acceptable material: AD Firefilm III; Cafco Sprayfilm.

.2 Colour topcoat: low VOC silicone alkyd coating, type recommended by manufacturer, compatible with spray fireproofing. Colour and sheen as selected by Contract Administrator.

.3 Primer: type recommended by manufacturer.

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 datasheets.

3.2 PREPARATION

.1 Substrate shall be free of material, which would impair bond.

.2 Verify that painted substrate(s) are compatible and have suitable bonding characteristics to receive fireproofing.

.3 Remove incompatible materials.

.4 Ensure that items required to penetrate fireproofing are placed before installation of fireproofing.

.5 Ensure that ducts, piping, equipment, or other items that would interfere with application of fireproofing are not positioned until fireproofing work is completed

3.3 APPLICATION

.1 Mix, prepare and apply intumescent fireproofing and decorative topcoat for exposed surfaces in accordance with manufacturer's instructions using recommended spray equipment.

.2 Apply fireproofing to correspond with tested assemblies, or acceptable calculation procedures to provide fire resistance ratings as indicated.

.3 Apply fireproofing over substrate, building up to required thickness to cover substrate with monolithic coating of uniform thickness.

.4 Apply base coat to provide smooth, even surface without voids, sags or other defects that are visible from a distance of 1000 mm.

.5 Permit each coat to dry between applications.

.6 Test base coat with dry-film tester to ensure required dry film thickness is attained before application of topcoat.

.7 Apply decorative topcoat using recommended spray applicators to provide smooth, paint like coating free of voids, sags, drips or other defects that are visible from a distance of 1000 mm.

3.4 INSPECTION AND SITE TESTS

.1 Inspection and testing of fireproofing will be carried out by a testing laboratory designated by Contract Administrator.

.2 Cost for testing laboratory will be paid under cash allowance.

3.5 PATCHING

.1 Patch damage to fireproofing caused by testing or by other trades before fireproofing is concealed, or if exposed, before final inspection.

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-S115-05, Fire Tests of Firestop Systems.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00.

.2 Submit duplicate 300 x 300 mm samples showing actual firestop material proposed for project.

.3 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.

.4 Shop drawings to indicate locations where firestopping is used, required fire resistance rating, the material to be used and the tested design system (ULC).

.5 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.

.3 Method 1: Non combustible, semi rigid felt; minimum density 65 kg per cu. metre; depth 100 mm, length 1220 mm, width as required. Impale clips to be galvanized wire or galvanized steel z clips.

.4 Method 2: as above but without the clips.

.5 Method 3: Hose stream, fluid gas and fire resistant elastomeric sealant, ULC.

.6 Method 4: Hose stream, fluid gas and fire resistant elastomeric seal or non shrink foam cement mortar proprietary certified assembly of a listed manufacturer.

.7 Obtain fire resistant rating not less than the fire resistance rating penetrated.

.8 Primers, damming and back up materials, supports and anchoring devices to manufacturers' written instructions and in accordance with tested assembly being installed as acceptable to Authorities having Jurisdiction.

.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 cm^2: 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 SECTION INCLUDES

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

.2 Text to complete other various Sections containing sealant or caulking specifications.

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-19.22-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.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00.

.2 Submit 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 duplicate samples of each type of material and colour.

.4 Cured samples of exposed sealants for each color where required to match adjacent material.

.1 Submit manufacturer's instructions to include installation instructions for each product used.

1.4 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.

1.5 PROJECT CONDITIONS

.1 Environmental Limitations:

.1 Do not proceed with installation of joint sealants under following conditions:

.1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.

.2 When joint substrates are wet.

.2 Joint-Width Conditions:

.1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

.3 Joint-Substrate Conditions:

.1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.6 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.

1.7 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, primer less, Type S, Grade NS, SWRI validated. Polysulfide Two Part '1B'.

.2 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, primer less, 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/m^3 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.

.8 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.

.9 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.

.10 Do not use caulking that emits strong odours, contains toxic chemicals or is not certified as mould resistant in air handling units.

.11 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.

.12 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, pre-cast 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, water closets, 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