Part 1 General

1.1 Section Includes

.1 Materials and installation for asphalt for use as dampproofing.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 51 00 - Temporary Utilities.

.3 Section 01 61 00 - Common Product Requirements.

.4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Section 02 61 33 - Hazardous Materials.

1.3 References

.1 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-37.2-M88, Emulsified Asphalt, Mineral-Colloid Type, Unfilled, for Dampproofing and Waterproofing and for Roof Coatings.
- .2 CAN/CGSB 37.3-M89, Application of Emulsified Asphalts for Dampproofing or Waterproofing.
- .3 CAN/CGSB 37.5-M89, Cutback Asphalt Plastic Cement.
- .4 CGSB 37-GP-6Ma-83, Asphalt, Cutback, Unfilled, for Dampproofing.
- .5 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.
- .6 CGSB 37-GP-11M-76(R1984), Application of Cutback Asphalt Plastic Cement.
- .7 CGSB 37-GP-12Ma-84, Application of Unfilled Cutback Asphalt for Dampproofing.
- .8 CGSB 37-GP-15M-76(R1984), Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing.
- .9 CAN/CGSB 37.16-M89, Filled, Cutback, Asphalt for Dampproofing and Waterproofing.
- .10 CAN/CGSB 37.28-M89, Reinforced Mineral Colloid Type, Emulsified Asphalt for Roof Coatings and for Waterproofing.
- .11 CGSB 37-GP-36M-76, Application of Filled Cutback Asphalts for Dampproofing and Waterproofing.
- .12 CGSB 37-GP-37M-77, Application of Hot Asphalt for Dampproofing or Waterproofing.

.2 Canadian Standards Association (CSA International)

- .1 CSA A123.4-98, Bitumen for Use in Construction of Built-Up Roof Coverings and Dampproofing and Waterproofing Systems.

.3 Health Canada

.1 Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 National Research Council Canada (NRC)/Institute for Research in Construction (IRC)

.1 Canadian Construction Materials Centre (CCMC)

1.4 Product Data

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures, etc.

1.5 Delivery, Storage and Handling

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

.2 Provide and maintain dry, off-ground weatherproof storage.

.3 Store materials on supports to prevent deformation.

.4 Remove only in quantities required for same day use.

.5 Store materials in accordance with manufacturer's written instructions.

1.6 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Ensure emptied containers are sealed and stored safely.

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

.6 Divert unused bituminous dampproofing materials from landfill to recycling facility.

1.7 Project/site Environmental Requirements

.1 Temperature, relative humidity, moisture content.

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

.2 Do not proceed with Work when wind chill effect would tend to set bitumen before proper curing takes place.

.3 Maintain air temperature and substrate temperature at dampproofing installation area above 5 degrees C for 24 hours before, during and 24 hours after installation.

.4 Do not apply dampproofing in wet weather.

Part 2 Products

2.1 Materials

.1 Asphalt:

.1 For application and curing at temperatures above 5 degrees C: to CAN/CGSB-37.2 CGSB 37-GP-6Ma CAN/CGSB-37.16 CAN/CGSB-37.28 CSA A123.4 Type 1.

.1 Package label or bill of lading for bulk hot liquid asphalt must indicate type, flash point, equiviscous temperature range and final blowing temperature.

.2 For application and curing at temperatures above 0 degrees C but below 5 degrees C: to CGSB 37-GP-6Ma CAN/CGSB-37.16 CSA A123.4 Type 1.

.1 Package label or bill of lading for bulk hot liquid asphalt must indicate type, flash point, equiviscous temperature range and final blowing temperature.

.2 Sealing compound: plastic cutback asphalt cement to CAN/CGSB-37.5.

.3 Asphalt primer: to CGSB 37-GP-9Ma CAN/CGSB-37.2.

Part 3 Execution

3.1 Workmanship

.1 Keep hot asphalt:

.1 Below its flash point.

.2 At or below its final blowing temperature.

.3 Within its equiviscous temperature range at place of application.

3.2 Preparation

.1 Before applying dampproofing:

.1 Seal exterior joints between foundation walls and footings, joints between concrete floor slab and foundation and around penetrations through dampproofing with sealing compound.

3.3 Application

.1 Do dampproofing in accordance with CAN/CGSB-37.3 CGSB 37-GP-12Ma CGSB 37-GP-36M CGSB 37-GP-37M except where specified otherwise.

.2 Do sealing work in accordance with CGSB 37-GP-11M except where specified otherwise.

.3 Do priming of surface in accordance with CGSB 37-GP-15M except where specified otherwise.

.4 Apply primer.

.5 Apply dampproofing in accordance with applicable CGSB application standard.

Material		**Application**
CAN/CGSB-37.2	use	CAN/CGSB-37.3
CGSB 37-GP-6Ma	use	CGSB 37-GP-12M
CAN/CGSB-37.16	use	CGSB 37-GP-36M
CAN/CGSB-37.28	use	CAN/CGSB-37.3
CSA A123.4	use	CGSB 37-GP-37M

3.4 Schedule

.1 Apply continuous, uniform coating to entire exterior faces of foundation walls from 50 mm below finished grade level to and including entire depth of foundation wall—ensure coating is below basement floor level.

.2 Apply continuous, uniform coating to exterior side of foundation walls enclosing rooms below finished grade. Include exterior portion of interior walls where floors in adjacent rooms are at different elevations.

.3 Apply two additional coats of dampproofing to vertical corners and construction joints for a minimum width of 230 mm on each side, and all around and for 230 mm along pipes passing through walls.

END OF SECTION

Part 1 General

1.1 Related Sections

.1 Section 05 31 00 – Steel Decking.

.2 Section 07 21 16 – Blanket Insulation.

.3 Section 07 21 19 – Foam-in-place Insulation.

.4 Section 07 26 00 – Vapour Retarders.

.5 Section 07 24 00 – Exterior Insulation and Finish Systems.

.6 Section 07 44 56 – Mineral Fibre Reinforced Cementitious Panels.

.7 Section 07 52 00 – Modified Bituminous Membrane Roofing.

1.2 References

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

.1 ASTM C208-95(2001), Specification for Cellulosic Fiber Insulating Board.

.2 ASTM C591-01, Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.

.3 ASTM C612-04, Standard Specification for Mineral Fibre Block and Board Thermal Insulation.

.4 ASTM C726-05, Standard Specification for Mineral Fiber Roof Insulation Board.

.5 ASTM C728-05, Standard Specification for Perlite Thermal Insulation Board.

.6 ASTM C1126-04, Standard Specification for Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation.

.7 ASTM C1289-05a, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

.8 ASTM E96/E96M-05, Standard Test Methods for Water Vapour Transmission of Materials.

.2 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.

.3 Canadian General Standards Board (CGSB)

.1 CGSB 71-GP-24M-77(R1983), Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.

.4 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-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

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

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

.1 Material Safety Data Sheets (MSDS).

1.3 Submittals

.1 Product Data:

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

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's insulation products and adhesives.

.2 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 Quality Assurance

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

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

.3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

1.5 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 Insulation

.1 Extruded polystyrene (XPS) to CAN/ULC-S701.

.1 SM, type II and III, above ground, 38 mm thickness and as indicated, compressive strength 10 psi, square and shiplapped edges, CFC free and HCFC free without ozone depletion potential greater than zero.

.2 SM, type IV, below ground, thickness 50 mm, and as indicated, compressive strength 10 psi, and shiplapped edges (on concrete grade beam foundation), CFC free and HCFC free without ozone depletion potential greater than zero.

.3 Acceptable material: Dow Chemical or approved equal.

.2 Expanded polystyrene (EPS) to CAN/ULC-S701.

.1 PB System – base coat varies in thickness depending on the number of layers or thickness or reinforcing mesh. The reinforcing mesh is typically fibreglass, which is embedded in the base coat at the time of installation.

.2 Type I above ground, 38 mm thickness and as indicated, standard board sizes, square edges, CFC free and HCFC free without ozone depletion potential greater than zero.

.3 Acceptable material: Dow Chemical Canada, Owens Corning or approved equal.

2.2 Termination/Joint Mastic

.1 Air Blocker by Daycor, Grace, or approved equal.

2.3 Adhesive

.1 Adhesive (for polystyrene): to CGSB 71-GP-24.

.1 Type and Class: Impervious.

2.4 Accessories

.1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.

.2 Screws to mount frames of cement fibre panels.

Part 3 Execution

3.1 Manufacturer's Instructions

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

3.2 Workmanship

.1 Install insulation after building substrate materials are dry.

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

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

.4 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, 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 Offset both vertical and horizontal joints in multiple layer applications.

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

3.3 Examination

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

.2 Prior to commencement of work ensure:

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

3.4 Exterior Wall Rigid Insulation Installation

.1 Install with insulation clips and disk, 2 per 600 x 1200 mm board minimum, fit boards tight, cut off fastener spindle 3 mm beyond disk.

.2 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 See Section 07 21 16 – Blanket Insulation.

.4 See Wall Types A – 1.

3.5 Perimeter Foundation Insulation Installation

.1 Exterior application: extend boards to top of footing. Install on exterior face of perimeter foundation wall with adhesive.

.2 See Wall Types A – 1.

3.6 Exterior Insulation and Finish System (EIFS) Installation

.1 Finish System: attach insulation with adhesive and/or mechanical fasteners to the substrate. Apply a fibreglass reinforced base coat to the exterior face of the insulation, and a protective finish to the surface of the base coat.

.2 See Section 07 21 16 – Blanket Insulation.

3.7 Roof Installation

.1 See Section 07 52 00 – Modified Bituminous Membrane Roofing.

3.8 Cleaning

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

END OF SECTION

Part 1 General

1.1 Related Sections

.1 Section 05 31 00 – Steel Decking.

.2 Section 07 21 13 – Board Insulation.

.3 Section 07 21 19 – Foam-in-place Insulation.

.4 Section 07 44 56 – Mineral Fibre Reinforced Cementitious Panels.

1.2 References

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

.1 ASTM C553-02, Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.

.2 ASTM C665-01e1, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.3 ASTM C1320-05, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.

.2 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.

.3 Canadian Standards Association (CSA International)

.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.4 Underwriters Laboratories of Canada (ULC)

.1 CAN/ULC-S604-M1991, Type A Chimneys.

.2 CAN/ULC-S702-1997, Standard for Mineral Fibre Insulation.

1.3 Submittals

.1 Product Data:

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

.2 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.4 Quality Assurance

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

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

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

.1 Verify project requirements. Review installation and substrate conditions.

.2 Co-ordinate with other building subtrades.

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

.4 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

1.5 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 Insulation

.1 Batt Insulation: to CAN/ULC-S702-97, Type 1, EcoLogo certified with minimum 45% recycled content, including post-consumer recycled content, thicknesses as indicated.

.1 Typical depths 92, 152, 203mm and as shown.

.2 Acceptable Product: Standard Frame Johns Manville or approved equal

.2 Sound Batt Insulation: to CAN/ULC-S702-97, Type 1, EcoLogo certified with minimum 45% recycled content, including post-consumer recycled content, thicknesses as indicated.

.1 Acceptable Product: Sound-SHIELD by Johns Manville or approved equal.

.3 Batt flute fill insulation.

.1 Roofing – Refer to Section 07 52 00 – Modified Bituminous Membrane Roofing and Section 05 31 00 – Steel Decking.

2.2 Accessories

.1 Nails: galvanized steel, length to suit insulation plus 25 mm, to CSA B111.

.2 Staples: 12mm minimum leg.

.3 Tape: as recommended by manufacturer.

Part 3 Execution

3.1 Manufacturer's Instructions

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

3.2 Insulation Installation

.1 Install insulation to maintain continuity of thermal protection to building elements and spaces and to ASTM C1320.

.2 Install insulation to maintain continuity of thermal protection to building elements and spaces to CBD-16 (Thermal insulation in dwellings) minimum standards. Keep insulation flush with face cavity for maximum thermal value.

.3 Install insulation with factory applied vapour barrier facing warm side of building spaces and vapour permeable membrane facing cold side. Lap ends and side flanges of membrane over framing members. Retain in position with nails staples insulation clips wire ties installed as recommended by manufacturer. Tape seal butt ends and lapped side flanges . Do not tear or cut vapour barrier.

.4 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

.5 Do not compress insulation to fit into spaces.

.6 Batt flute filler insulation installation: as recommended by industry standards and to Contract Administrator’s approval.

.7 Keep insulation minimum 75mm from heat emitting devices such as recessed light fixtures, and minimum 50mm from sidewalls of CAN/ULC-S604 Type A chimneys and CAN/CGA-B149.1 and CAN/CGA-B149.2 Type B and L vents.

.8 Minimum Standard: Install insulation to maintain continuity of thermal protection to building elements and spaces to CBD-16 (Thermal insulation in dwellings) minimum standards. Keep insulation flush with face cavity for maximum thermal value.

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

3.3 Cleaning

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

END OF SECTION

Part 1 General

1.1 Related Sections

.1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Section 01 45 00 - Quality Control.

.3 Section 01 51 00 - Temporary Utilities.

.4 Section 07 21 13 – Board Insulation.

.5 Section 07 21 16 – Blanket Insulation.

1.2 References

.1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)

.2 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S705.1-01, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Material Specification.

.2 CAN/ULC-S705.2-02, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Installer's Responsibilities-Specification.

1.3 Test Reports

.1 Submit test reports, verifying qualities of insulation meet or exceed requirements of this specification, in accordance with Section 01 45 00 - Quality Control.

1.4 Quality Assurance

.1 Applicators to conform to CUFCA Quality Assurance Program.

1.5 Safety Requirements

.1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:

.1 Workers must wear gloves, dust masks, long sleeved clothing, and eye protection when applying foam insulation.

.2 Workers must not eat, drink or smoke while applying foam insulation.

1.6 Protection

.1 Ventilate area in accordance with Section 01 51 00 - Temporary Utilities.

.2 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hour after application to maintain non-toxic, unpolluted, safe working conditions.

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

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

1.7 Waste Management and Disposal

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

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

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

.5 Dispose of waste foam daily in location designated by Contract Administrator and decontaminate empty drums in accordance with foam manufacturer's instructions CAN/ULC-S705.2.

.6 Divert metal drums from landfill to metal recycling facility as approved by Contract Administrator and to CAN/ULC-S705.2.

1.8 Environmental Requirements

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

Part 2 Products

2.1 Materials

.1 Insulation: spray polyurethane to CAN/ULC-S705.1.

.2 Primers: in accordance with manufacturer's recommendations for surface conditions.

Part 3 Execution

3.1 Application

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

.2 Apply sprayed foam insulation in thickness recommended by Manufacturer.

.3 Apply insulation to clean surfaces in accordance with CAN/CGSB-51.39 and manufacturer's printed instructions. Use primer where recommended by manufacturer.

.4 Apply spray foam in cavity around window, door and grille rough openings.

.5 Apply spray foam in tight stud spaces where batt insulation cannot be installed prior to installing gypsum wall board both inside and outside.

.6 Apply spray foam in gaps where full contact has not been achieved but is required.

.7 Apply spray foam around exterior steel columns where sweating is a potential problem.

END OF SECTION

Part 1 General

1.1 Related Sections

.1 Section 04 22 00 – Concrete Unit Masonry.

.2 Section 09 22 16 – Non-Structural Metal Framing.

.3 Section 05 50 00 – Metal Fabrications.

.4 Section 07 21 13 – Board Insulation.

.5 Section 07 21 16 – Blanket Insulation.

.6 Section 07 27 10 – Air Barriers – Descriptive or Proprietary.

.7 Section 07 44 56 – Mineral Fibre Reinforced Cementitious Panels.

.8 Section 07 62 00 – Sheet Metal Flashing and Trim.

.9 Section 07 92 10 – Joint Sealing.

.10 Section 09 21 16 – Gypsum Board Assemblies.

1.2 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 Vapor Transmission of Materials.

.9 ASTM E2098-00, Standard Test Method for Determining Tensile Breaking Strength of Glass Fiber 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 Vapor 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

1.3 Definitions

.1 Aesthetic joint: joint for appearance of installation ease. Also known as aesthetic reveals, grooves and reglets used to provide starting and stopping points during application of finish coat.

.2 Adhesive: a polymer based, polymer modified or cementitious material, typically mixed with Portland cement used to attach insulation board to substrate.

.3 Back wrapping: at edges (termination) of EIFS where the reinforcing mesh and base coat extend from the back side of the insulation around the termination edge and onto the front of the insulation.

.4 Base coat adhesive: adhesive used in base coat.

.5 Base coat: Material used to encapsulate one or more layers of reinforcing mesh fully embedded that is applied to the outside surface of the EPS. Layer consists of polymer modified, typically mixed with Portland cement and applied to face of insulation board and reinforced with one or more layers of mesh to function as a weather barrier.

.6 Base coat thickness: greater than 3 mm.

.7 Expansion joint: joint through EIFS to allow for movement.

.8 Finish coat: An acrylic-based coating, decorative and protective, available in a variety of textures and colours that is applied to outside surface of base coat.

.9 Insulation Board: Expanded polystyrene (EPS) insulation board, which is affixed to the substrate.

.10 Lamina: base coat, reinforcing mesh and finish.

.11 Mechanical fastener: mechanical device for attaching insulation to substrate.

.12 NC (system): Non-combustible.

.13 Reinforcing mesh: balanced, open weave, glass fibre reinforcement to base coat providing impact resistance.

.14 Substrate: surface to which EIFS is attached.

.15 Substrate System: The total wall assembly including the attached substrate to which the EIFS is affixed.

.16 Sheathing: A substrate in sheet form.

1.4 System Description

.1 Exterior insulation and finish system to be site applied cladding system consisting of adhesive, insulation board, base coat with reinforcing mesh and finish.

.1 Adhesive applied.

.2 General: The Exterior Insulation and Finish System (EIFS), Class PB, consisting of a water-resistive barrier coating (air/water-resistive barrier), an adhesive, expanded polystyrene insulation board, base coat, reinforcing mesh(es) and finish

.3 Code Related: The System is considered a combustible exterior wall assembly permitted for use in noncombustible construction as per the National Building Code of Canada Section 3.1.5. and may also be used in combustible construction as per Section 3.1.4.

.1 The utilizing a noncombustible protective material and satisfying the requirements of Sentence 3.2.3.7.(7) may be used in applications where compliance with this sentence is applicable as per the provisions of Article 3.2.3.7. Exposing Building Faces.

.4 Methods of Installation

.1 Field Applied: The System is applied to the substrate system in place.

.5 Design Requirements:

.1 Acceptable substrates for the System shall be:

.1 Exterior grade gypsum sheathing meeting ASTM C 1396 (formerly C 79) requirements for water resistant core or Type X core at the time of application of the System.

.2 Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.

.2 Deflection of substrate systems shall not exceed 1/240 times the span.

.3 The substrate shall be flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.

.4 The slope of inclined surfaces shall not be less than 6:12, and the length shall not exceed 305 mm.

.5 Expansion Joints:

.1 Design and location of expansion joints in the System is noted on the Drawings. As a minimum, expansion joints shall be placed at the following locations:

.1 Where expansion joints occur in the substrate system.

.2 Where building expansion joints occur.

.3 At floor lines in wood frame construction.

.4 At floor lines of non-wood framed buildings where significant movement is expected.

.5 Where the System abuts dissimilar materials.

.6 Where the substrate type and behaviour changes.

.7 Where prefabricated panels abut one another.

.8 In continuous elevations at intervals not exceeding 23 m.

.9 Where significant structural movement occurs, such as changes in roofline, building shape or structural system.

.6 Secondary Barriers

.1 The use of secondary barriers is a design requirement of this system and EIFS assemblies as governed by conformance to CCMC evaluation and the provisions of CAN/ULC-S716.1 Standard for Exterior Insulation and Finish Systems Materials and Systems. This secondary barrier may also be used to provide the plane of air tightness as part of an air barrier system. All secondary barriers meet the requirements for air barrier classification have an air leakage rate of $<0.05 L/s.m^2$ @ 75Pa. Use, location and performance characteristics of the air barrier system shall be determined by the drawings and this specification document and shall meet the requirements of Part 5 of the applicable Canadian Building Code for the given project.

.7 Terminations

.1 Prior to applying the System, wall openings shall be treated with Flashing Tape. Refer to System Installation Details.

.2 The System shall be held back from adjoining materials around openings and penetrations such as windows, doors, and mechanical equipment a minimum of 19 mm for sealant application. See System Installation Details.

.3 The system shall be terminated a minimum of 203 mm above finished grade.

.8 Sealants

.1 Shall be manufactured and supplied by others.

.2 Shall be compatible with System materials. Refer to Systems current publication for listing of sealants tested by sealant manufacturer for compatibility.

.3 The sealant backer rod shall be closed cell.

.9 Vapour Barriers- The use and location of vapor retarders within a wall assembly as shown on the Drawings. Refer to systems Publication for additional information.

.10 Flashing: Shall be provided at all roof-wall intersections, windows, doors, chimneys, decks, balconies and other areas as necessary to prevent water from entering behind the System.

.11 Finish: Base coat, reinforcing mesh, acrylic primer and acrylic finish applied to substrates.

1.5 Design Requirements

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

1.6 Performance Requirements

.1 Installed modified polymer coat wall system to have following performance properties:

.1 Comply with CAN/ULC-S134.

.2 Finish-abrasion resistance: falling sand method to ASTM D968, no deleterious effects after 500 litres.

.3 Finish-salt spray resistance: to ASTM B117, after 300 hours' exposure to 5% salt spray solution - no effects.

.4 Finish-moisture resistance: to ASTM D2247 (U.S. Federal Test Standard 141A Method 6201), after 14 days exposure - no deleterious effects.

.5 Accelerated weathering: to CAN/CGSB-1.162 ASTM G154, 2000 hours - no effect.

.6 Impact resistance: to ASTM E 72, only slight dents observed up to 108.465J EIMA 101.86 Level 1, 3-6 Level 2, 6-10 Level 3, 10-17 Level 4, >17 joules.

.7 Bond strength: to CAN/CGSB-1.162 ASTM E2098 ASTM C 297, dry, wet-2 hour dry, wet-7 day dry, minimum 1 MPa.

.8 Permeability: to CAN/CGSB-1.162 ASTM E96, 5.93 perms ASTM E2321.

1.7 Submittals

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

.2 Product Data:

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedure.

.2 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 61 33 - Hazardous Materials. WHMIS acceptable to Labour Canada, and Health and Welfare Canada for exterior insulation and finishing materials. Indicate VOC content.

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

.3 Shop Drawings:

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures .

.2 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 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit two 300 x 300 mm sample of each colour of finished wall system prior to fabrication of mock-up. Samples to show true finish, texture and colour to be used in project.

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

.6 Manufacturers' Field Reports: submit copies of manufacturers field reports, within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.8 Quality Assurance

.1 Qualifications:

.1 Installation of exterior insulation and finish wall system by applicators certified or licensed and endorsed by manufacturers of system used.

.1 Submit certification to Contract Administrator prior to commencement of work in accordance with 01 33 00 - Submittal Procedures.

.2 Materials shall be manufactured at a facility covered by a current ISO 9001:2000 certification. Certification of the facility shall be done by a registrar accredited by the American National Standards Institute, Registrar Accreditation Board (ANSI-RAB).

.3 Contractor: Shall be knowledgeable in the proper installation of the System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current System Trained Contractor Registration Certificate.

.4 Insulation Board Manufacturer: Shall be listed by system as acceptable, shall be capable of producing the Expanded Polystyrene (EPS) in accordance with the current system Specification for Insulation Board, and shall subscribe to the Third Party Certification and Quality Assurance Program.

.2 Regulatory Requirements:

.1 The EPS shall be separated from the interior of the building by as required by code (e.g. 15.9mm Type X Gypsum Sheathing).

.2 The use and maximum thickness of EPS shall be in accordance with the applicable building code(s).

.3 Certification

.1 The System shall be recognized for the intended use by the applicable building code(s).

.4 Mock-ups

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

.2 Construct mock up of complete EIFS system on typical exterior wall to size required to accurately represent the products being installed, incorporating:

.1 Window and frame to demonstrate back wrap and reinforcement at corners.

.2 Door and frame to demonstrate back wrap and reinforcement at corners.

.3 Wrappings and terminations: back wrapping and edge wrapping.

.4 Joints to demonstrate aesthetic, control and expansion joint construction.

.5 Construction at changes in substrate.

.6 Construction at corner stop.

.7 Construction at sill of wall, windows and doors.

.8 Construction at grade and below grade.

.9 Construction at parapets and soffits.

.10 Construction at both large and small penetrations.

.11 Construction at surface mounted objects and foam shapes.

.12 Adhesive and mechanical fastening systems.

.13 Colour, texture and finish.

.3 Construct mock-up where directed.

.4 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with work.

.5 Mock-up will be used

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.1 For testing to determine compliance with performance requirements.

.6 When accepted, mock-up will demonstrate minimum standard of quality required for this work.Approved mock-up may not remain as part of finished work. Remove mock-up and dispose of materials when no longer required and when directed by Contract Administrator .

.5 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.

.6 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

1.9 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 All materials shall be delivered to the job site in the original, unopened packages with labels intact.

.4 Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.

.5 Materials shall be stored at the jobsite in a cool, dry location, out of direct sunlight, protected from weather and other sources of damage. Minimum storage temperature shall be as follows:

.1 Refer to specific product data sheets.

.6 Maximum storage temperature shall not exceed 38 °C (100 °F).

.7 Protect adhesives and base finish materials from freezing.

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

1.10 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Dispose of waste foam insulation daily in location designated by Contract Administrator and decontaminate empty drums in accordance with manufacturers' instructions.

.5 Divert metal drums from landfill to metal recycling facility approved by Contract Administrator.

.6 Divert unused metal materials from landfill to metal recycling facility approved by Contract Administrator.

.7 Divert unused adhesive, sealant and basecoat material from landfill to official hazardous material collections site approved by Contract Administrator

.8 Do not dispose of unused adhesive, sealant and basecoat materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

1.11 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.

.3 Ventilation:

.1 Ventilate area of work as directed by Contract Administrator by use of approved portable supply and exhaust fans.

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

.3 Provide continuous ventilation during and after insulation application. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of insulation installation.

.4 Scheduling:

.1 Installation of the System shall be coordinated with other construction trades.

.2 Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.

1.12 Warranty

.1 Contractor warrants that exterior insulation and finish system will not leak or delaminate for 60 months.

Part 2 Products

2.1 Material

.1 Portland Cement: Shall be Type 10, meeting ASTM C 150, white or gray in color, fresh and free of lumps.

.2 Water: Shall be clean and free of foreign matter.

2.2 Surface Preparation

.1 Conditioner/ Sealer: acrylic, clear conditioner/sealer compatible with system materials, recommended by system manufacturer.

.2 Leveller: polymer-modified, cement-based, reinforced levelling compound.

2.3 Adhesives

.1 A moisture cure, urethane-based adhesive used to adhere the Drainage Strip and Drainage Track.

.1 Acceptable Product: Dryvit AP Adhesive™.

.2 Use to adhere the EPS to the air/water-resistive barrier, shall be compatible with the water-resistive barrier and the EPS

.1 Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.

.1 Acceptable products: As recommended by manufacture: Primus or Genesis.

.2 Factory Blended: A dry blend cementitious, copolymer-based product, field mixed with water.

.1 As recommended by manufacturer: Primus® DM, Genesis® DM, Genesis® DMS, Rapidry DM 35-50 or Rapidry DM 50-75

2.4 **Air/Water-Resistive Barrier Components:** Used as a secondary barrier over sheathing type substrates and may be utilized as part of an air barrier system.

.1 Noncementitious air and moisture barrier (vapour permeable).

.1 A factory mixed, fully formulated water-based material for use over all sheathing types. May be used over masonry type substrates following leveling coat of Genesis (wet).

.2 Acceptable Product: Backstop NT by Dryvit.

.2 An open weave fiberglass mesh tape with pressure sensitive adhesive available in rolls 102 mm wide by 91 m long. 102mm mesh may be used on flat joints.

.1 Acceptable Product: Dryvit Grid Tape™.

2.5 Drainage Track:

.1 UV treated PVC "J" channel perforated with weep holes, complying with ASTM D 1784 and ASTM C 1063. Drainage track usage is limited to the base of the system at finished grade level. All other horizontal terminations shall utilize the Drainage Strip as shown.

.2 Acceptable Products:

.1 As recommended by manucturer:

.2 Starter Trac STWP – without drip edge by Plastic Components, Inc.

.3 Starter Trac STDE – with drip edge by Plastic Components, Inc.

.4 Universal Starter Track by Wind-lock Corporation

.5 Sloped Starter Strip with Drip by Vinyl Corp.

2.6 Drainage Strip:

.1 A corrugated plastic sheet material, which provides drainage.

.2 Acceptable Product:

.1 Dryvit Drainage Strip™.

2.7 Mechanical Fasteners

.1 Insulation clips: impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, 2.5 mm annealed steel spindle, length to suit insulation, 25 mm diameter self locking washers.

2.8 Insulation

.1 Expanded polystyrene (EPS): to CAN/ULC-S701, Type 1, and ASTM E2430, RSI as indicated.

2.9 Basecoat

.1 Test Adhesive Base Coat to: ASTM C297 ASTM E2134.

.2 To be compatible with EPS and reinforcing mesh.

.3 Noncumbustible: As recommended by System manufacturer.

.4 Modified, cementitious, co-polymer base coat system: Portland cement, silica sand aggregate, acrylic liquid admixture, 13.2% acrylic to cement ratio, colour to be selected by Contract Administrator.

.1 Acceptable Product: Primus DM.

2.10 Reinforcing Mesh

.1 Reinforcing Mesh to: ASTM E2098.

.2 Balanced, open weave glass fibre fabric made from twisted multi-end strands, treated, alkali resistant, compatible with chemical bonding system base coat and finish coat, weight 153 g/m^2 or as recommended by manufacturer.

.1 Application instructions: Minimum mesh/mesh overlap shall be 75mm (3.0 in).

2.11 Finish Coat

.1 Modified finish coat system: acrylic type, Portland cement, silica sand aggregate, integral mineral pigmentation and additives, colour and depth of exposed aggregate with fine pebble texture finish, selected by Contract Administrator.

2.12 Primer

.1 Acrylic based primer.

2.13 Accessories

.1 Accessories: PVC corner beads, casing beads, stop beads, starter strips and accessories, as recommended by exterior insulated wall system manufacturer to suit system components.

2.14 Flashing: Used to protect substrate edges at terminations.

.1 Liquid Applied: An extremely flexible water-based polymer material, ready for use.

.1 As recommended by Systems manufacturer:

.1 Acceptable product: AquaFlash and AquaFlash Mesh by Dryvit.

.2 Sheet Type:

.1 Shall be Flashing Tape and Surface Conditioner

.1 A high density polyethylene film backed with a rubberized asphalt adhesive available in rolls 102 mm, 152 mm and 229 mm wide by 23 m long.

.1 Acceptable Product: Dryvit Flashing Tape™:

.2 A water-based surface conditioner and adhesion promoter for the Flashing Tape.

.1 Acceptable Product: Dryvit Flashing Tape Surface Conditioner™.

2.15 Expansion Joints

.1 Expansion joints: interrupted finish.

.2 Ensure expansion joints are back wrapped.

.3 Joint Cleaner: non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.

.4 Sealant primer: as recommended by sealant manufacturer.

.5 Joint filler: extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 - 200 kPa, outsized 30 to 50%.

.6 Sealant: in accordance with Section 07 92 10 - Joint Sealing , compatible with systems materials, and as recommended by system manufacturer.

.1 Weather seals: multi-component, chemical curing to CAN/CGSB-19.24, Type 2, Class B.

2.16 Mixes

.1 General:

.1 Mixer: high speed, clean and rust free.

.2 Mixing pail: clean and rust free.

.3 Mixes: additive free.

.2 Conditioner: mix in accordance with manufacturer's written instructions.

.3 Leveller: mixed to uniform consistency in accordance with manufacturer's written instructions.

.4 Adhesive: mixed in accordance with manufacturer's written instructions.

.5 Basecoat: mixed to uniform consistency in accordance with manufacturer's written instructions.

.6 Finish coat: mixed to uniform consistency in accordance with manufacturer's written instructions.

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 and in accordance with manufacturer's written instructions.

.2 Prior to installation of the System, the Contract Administrator shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the System application. Additionally the Contractor shall ensure that:

.1 Metal roof flashing has been installed.

.2 Openings are flashed in accordance with the System Installation Details, or as otherwise necessary to prevent water penetration.

.3 Decks have been properly flashed.

.4 Windows, Doors, etc. are installed and flashed per manufacturer's requirements and the System Installation Details.

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

.4 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:

.1 The substrate shall be prepared as to be free of foreign materials, such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellants, moisture, frost, and any other condition that may inhibit adhesion.

.2 Ensure environmental and site conditions are suitable for installation of system.

.3 Prepare new existing surfaces in accordance with manufacturer's written instructions.

3.3 Installation

.1 Install system in accordance with CAN/ULC-S134 and manufacturer's instructions.

.2 Surface preparation:

.1 Conditioner/ Sealer: acrylic, clear conditioner/sealer compatible with system materials, substrate and as recommended by system manufacturer.

.1 Apply to clean, dry substrate surfaces ensuring complete even coverage in accordance with manufacturer's written instructions.

.2 Leveller: polymer-modified, cement based, reinforced leveling compound as recommended by System manufacturer.

.1 Allow set time.

.2 Apply to existing substrate, 6 mm thick maximum.

.3 Allow time to fully cure as outlined in manufacturers written instructions.

.3 Insulation anchors: install insulation anchors to spacing and pattern recommended by EIFS manufacturer. Maintain continuity of air barrier system.

.4 Adhesives application and installation of insulation board:

.1 Apply uniform ribbons of adhesive to back of and parallel to long dimension of insulation board, using recommended notched trowel.

.2 Offset insulation joints.

.3 Immediately place insulation boards in running bond pattern on walls with long dimension horizontal, starting from level base line. Apply firm pressure over entire surface of board to ensure full contact. Determine location and pattern of sheathing joints. Bridge sheathing joints by minimum of 200 mm.

.4 Butt vertical and horizontal joints tightly together. Ensure joints between boards are free of adhesive.

.5 Cut insulation board in L-shaped pattern to fit around openings. Do not align joints with corners of openings.

.6 Remove individual boards periodically when adhesive is still wet to check for satisfactory contact with substrate and back of insulation board.

.7 Sealant shall not be applied directly to textured finishes or base coat surfaces.

.5 Backwrapping:

.1 Ensure edge of insulation board is wrapped with base coat prior to installation to substrate.

.2 Apply strip of detail mesh with adhesive to substrate at level base line and at terminations.

.3 Ensure width of detail mesh is adequate to adhere 100 mm of mesh onto substrate and to wrap around insulation board edge with minimum 64 mm coverage on outside of insulation board.

.4 After adhering detail mesh to substrate ensure, mesh ends hang free for completion of backwrapping procedure after insulation application.

.6 Accessories:

.1 Install all required accessories as detailed and as required by EIFS manufacturer and in accordance with CAN/ULC-S134.

.7 Preparation of Insulation Board surface:

.1 Fill open joints in insulation board with slivers of insulation or spray foam as recommended by manufacturer's written instructions.

.2 Rasp surface to achieve smooth, level, even surface after insulation boards have firmly adhered to substrate. Remove ultraviolet ray damage. Rasp smooth any irregularities in insulation board greater than 1.6 mm. Ensure insulation board tolerance not greater than 6 mm in 2,500 mm and in accordance with manufacturer's written instructions.

.3 Remove ultraviolet ray damage.

.4 Rasp smooth any irregularities in insulation board greater than 1.6 mm. Ensure insulation board tolerance not greater than 6 mm in 2,500 mm and in accordance with manufacturer's written instructions.

.8 Joints:

.1 Reveals and Aesthetic Grooves:

.1 Cut reveals and aesthetic grooves with appropriate tool in locations as indicated on Drawings.

.2 Offset reveals minimum 75 mm from insulation joints.

.3 Maintain minimum 19 mm insulation board thickness at bottom of groove after cutting.

.2 Expansion joints:

.1 Install expansion joints in locations indicated and to manufacturers written instructions.

.2 Install expansion joints at isolation joints in substrate, where new construction abuts existing construction and at locations where movement is expected.

.9 Backwrapping completion:

.1 Complete backwrapping procedure by applying base coat to exposed edges of insulation board and 100 mm onto face of insulation board.

.2 Pull mesh tight around board and embed it in base coat with trowel.

.3 Use corner trowel for clean, straight lines.

.4 Smooth wrinkles or gaps in mesh.

.10 Mesh and Base Coat Application:

.1 Apply 225 x 300 mm diagonal strips of mesh at corners of windows, doors and penetrations through insulation. Embed strips in wet base coat and trowel from centre to mesh edge to avoid wrinkles.

.2 Apply mesh at reveals. Embed mesh in wet base coat and trowel from base of reveal to mesh edges.

.3 Apply mesh at inside and outside corners. Embed mesh in wet base coat and trowel from corner of mesh edges.

.4 The overall minimum base coat thickness shall be sufficient to fully embed the mesh. The recommended method is to apply the base coat in two (2) passes.

.5 Standard mesh application:

.1 Apply base coat over insulation board to uniform thickness of approximately 3 mm.

.2 Work horizontally or vertically in 1000 mm strips, and immediately embed mesh into wet base coat by trowelling from centre to mesh edge.

.3 Overlap mesh 75 mm minimum at mesh seams and overlaps of detail mesh.

.4 Feather seams and edges.

.5 Double wrap inside and outside corners with minimum 64 mm overlap in each direction. Embed corner mat in wet base coat, allow to dry, then overlap up to corner with standard reinforcing mesh embedded in base coat.

.6 Avoid wrinkles in mesh.

.7 Fully embed mesh so that no mesh colour shows through base coat when dry.

.8 Ensure minimum base coat thickness 1.6 mm when dry. Re-skim base coat if 1.6 mm thickness not achieved during initial application. Allow base coat to thoroughly dry before applying primer or finish coat.

.11 Finish Coat Application:

.1 Apply finish coat in accordance with manufacturer's writing installation instructions.

.2 Prime dry base coat and allow to dry thoroughly before applying finish coat.

.3 Apply finish coat directly over base coat, or primed base coat, only after base coat or primer has thoroughly dried.

.4 Apply finish by spray or trowel as recommended by manufacturer.

.5 Apply finish in continuous application, and work towards wet edge.

.6 Do not install separate batches of finish coat side by side.

.7 Do not apply finish into or over sealant joints. Apply finish to outside of wall only.

.8 Do not apply finish over irregular or unprepared surfaces.

.9 Apply textured or aggregate finishes to wall areas as indicated and in accordance with manufacturer's written instructions.

.10 EPS Surface:

.1 Reinforced base coat shall be applied in accordance with current System Application Instructions.

.2 Apply a continuous layer of base coat and reinforcing mesh over the entire EPS surface in accordance with published instructions for the specific base coat being used.

.3 All EPS terminations shall be encapsulated with reinforced base coat.

.4 When specified, high impact meshes shall be installed at ground level, high traffic areas, and other areas exposed to or susceptible to impact damage.

.5 Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.

.6 Apply the specified finish in accordance with Systems printed installation instructions for the specific finish being used.

.1 Acceptable Products by Dryvit or approved equal.

3.4 Field Quality Control

.1 Manufacturers' Field Services:

.1 Have manufacturer of products supplied under this Section review Work involved in handling, installation/application, protection and cleaning of its products, and submit written reports in acceptable format to verify compliance of Work with Contract.

.2 Manufacturer's field services: provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Obtain reports within three days of review and submit.

3.5 Cleaning

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

3.6 Protection

.1 The System shall be protected from inclement weather and other sources of damage until dry and permanent protection in the form of flashings, sealants, etc. are installed.

END OF SECTION

Part 1 General

1.1 Related Sections

.1 Section 07 24 00 – Exterior Insulation and Finish Systems.

.2 Section 07 27 10 – Air Barriers – Descriptive or Proprietary.

1.2 References

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-51.33-M89, Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.

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

.2 Canadian Standards Association (CSA)

.1 CAN/CSA-ISO 9001 9002 9003, Requirements for Quality Assurance, Parts 1, 2 and 3.

.2 CAN/CSA-ISO 14001-96, Environmental Management Systems - Specifications with Guidance for Use.

1.3 Submittals

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet and include: Product characteristics.

.1 Performance criteria.

.2 Limitations.

.3 Submit two (2) copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS).

.4 Quality assurance submittals:

.1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.2 Instructions: submit manufacturer's installation instructions and comply with written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

1.4 Quality Assurance

.1 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

.2 Mock-Ups:

.1 Submit mock-ups in accordance with Section 01 45 00 - Quality Control.

.2 Construct mock-up of sheet vapour barrier installation including one lap joint, one inside corner and at one electrical box. Mock-up may be part of finished work.

.3 Mock-up will be used to judge workmanship, substrate preparation, and material application.

.4 Locate as directed by Contract Administrator.

.5 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with vapour barrier work.

.6 When accepted, mock-up will demonstrate minimum standard of quality required for this work.

.7 Approved mock-up may remain as part of finished work if approved by Contract Administrator..

1.5 Delivery, Storage and Handling

.1 Waste Management and Disposal:

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

Part 2 Products

2.1 Sheet Vapour Barrier

.1 Polyethylene film: to CAN/CGSB-51.34; 0.152 mm (6 mil) and 0.254 mm (10 mil) thicknesses.

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: compatible with vapour retarder materials, recommended by vapour retarder manufacturer. To Section 07 92 10 - Joint Sealing.

.3 Staples: minimum 6 mm leg.

.4 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.

Part 3 Execution

3.1 Installation

.1 Install to manufacturer’s instructions.

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

.3 Install sheet vapour retarder on warm side of exterior wall and ceiling assemblies prior to installation of gypsum board to form continuous retarder.

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

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

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

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

3.3 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.

3.4 Door, Window and Other Openings

.1 Attach vapour barrier to integral window vapour barrier.

.2 Attach vapour barrier to door frame and opening-through-the-wall framed openings.

3.5 Electrical Boxes

.1 Seal electrical switch and outlet device boxes that penetrate vapour barrier as follows:

.1 Install moulded box vapour barrier.

.2 Apply sealant to seal edges of flange to main vapour barrier and seal wiring penetrations through box cover.

3.6 Cleaning

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.7 Schedule

.1 Install 6 mil barrier as per wall types – Refer to Drawing A -1.

.2 Install 10 mil barrier under the Crawlspace. Overlap joints between two layers.

.3 Refer to Drawings for locations.

END OF SECTION

Part 1 General

1.1 Section Includes

.1 Materials and installation methods providing primary air/vapour barrier materials and assemblies.

.2 Air/vapour barrier materials to provide continuous seal between components of building envelope and building penetrations.

.3 Material and assembly of a non-cementitious, polymer-based, water resistant, protective coating used as a secondary weather barrier and air barrier for use over approved exterior substrates, in conjunction with Exterior Insulation and Finish Systems.

1.2 Related Sections

.1 Section 03 30 00 – Cast-in-Place Concrete.

.2 Section 04 22 00 – Concrete Unit Masonry.

.3 Section 07 27 11 0- Air Barriers – Performance.

.4 Section 07 92 10 - Joint Sealing.

1.3 References

.1 Canadian Construction Documents Committee

.1 CCDC 2 - Stipulated Price Contract.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-19.13M-M87, Sealing Compound, One Component, Elastomeric Chemical Curing.

.2 CAN/CGSB-19.18M-M87, Sealing Compound, One Component, Silicone Base Solvent Curing.

.3 CAN/CGSB-19.24M-M90, Multi-Component, Chemical Curing Sealing Compound.

.4 CGSB 19-GP-14M-76, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing.

.3 NBCC 1995; Part 5 - Environmental Separation

.4 Sealant and Waterproofer's Institute - Sealant and Caulking Guide Specification.

1.4 Submittals

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.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.

.4 Texture Air and Vapour Barrier (EIFS):

.1 Product Manufacturer: All materials shall be manufactured or sold by manufacture of Exterior Insulation and Finish Systems and shall be purchased from manufacturer of Exterior Insulation and Finish Systems or its authorized distributor.

.2 Materials shall be manufactured at a facility covered by a current ISO 9001 certification.

.3 Contractor: Shall be experienced and competent in the application of the Exterior Insulation and Finish Systems.

1.5 Quality Assurance

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

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

.3 Perform Work in accordance with Canadian Urethane Foam Contractors Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

.4 Maintain one copy of documents on site.

1.6 Qualifications

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

.2 Applicator: Company who is currently licensed by National Air Barrier Association Canadian Urethane Foam Contractors Association or certifying organization must maintain their license throughout the duration of the project.

1.7 Mock-up

.1 Construct mock-up if requested by Contract Administrator in accordance with Section 01 45 00 - Quality Control.

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

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

1.8 Pre- Installation Meetings

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

1.9 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.

.3 Avoid spillage. Immediately notify Contract Administrator if spillage occurs and start clean up procedures.

.4 Clean spills and leave area as it was prior to spill.

.5 All materials shall be delivered to the job site in the original, unopened packages with labels intact. Upon arrival, materials shall be inspected for physical damage, freezing, or overheating. Questionable materials shall not be used. Materials shall be stored at the job site in a cool, dry location, out of direct sunlight, protected from weather and other damage. Minimum storage temperature shall be 4 °C (40 °F).

.6 At the time of application of the Texture Air and Vapour Barrier the air and wall surface temperatures shall be minimum 4 °C (40 °F) and rising at the time of application. Applied material temperature shall also be maintained above this minimum level. These temperatures shall be maintained, with adequate air ventilation and circulation, for a minimum of 12 hours thereafter, or until the products are dry.

1.10 Waste Management and Disposal

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

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

1.11 Project Environmental Requirements

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

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

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

1.12 Sequencing

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

1.13 Warranty

.1 Provide a 2 year warranty for sealant and sheet materials.

.2 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 Building Wrap to ASTM E1677:

- .1 Commercial Wrap.
- .2 Product specifications/characteristics:
  - .1 Air penetrations: ASTM E1677
  - .2 Water Vapour Transmission: ASTM E96.
  - .3 Breaking strength: ASTM D-882.
  - .4 Tear Resistance: ASTM D-1117.
  - .5 Surface Burning: ASTM E-84-97a, Class A.
  - .6 Indexed Smoke Development Value: Class A.
- .3 Acceptable product: Dupont Tyvek or approved equal.
- .4 Equals: As accepted by Contract Administrator.

.2 Texture Air and Vapour Barrier

- .1 A non-cementitious, polymer-based, water resistant, protective coating used as a secondary weather barrier and air barrier for use over approved exterior substrates, in conjunction with Exterior Insulation and Finish Systems: Outsulation Plus NC by Dryvit or approved equal – Refer to Section 07 24 00 – Exterior Insulation and Finish Systems.
- .2 Joint Mesh: A 75 mm wide, open weave fiberglass mesh tape used to reinforce sheathing joints and exposed edges of sheathing at corners and rough openings.
- .3 Transition Membrane: A fibre-faced, non-woven, rubberized asphaltic, self adhering transition membrane.
- .4 Surface Conditioner: A water-based surface conditioner and adhesion promoter for Transition Membrane.
- .5 Scrim Tape: 100 mm wide netted woven mesh used to reinforce sheathing joints.
- .6 Acceptable Product: Dryvit Backstop NT - Texture air and moisture barrier and components and accessories or approved equal.

.3 Foam Seal Type 4: Spray-applied medium density spray polyurethane foam insulation/air/vapour barrier:

2.2 Sealants

.1 Sealants in accordance with Section 07 92 10 - Joint Sealing.

.2 EIFS – as recommended by manufacturer.

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

.1 Acceptable material: NP-1, Sonneborne.

.4 Polyurethane Sealant CAN/CGSB-19.24M, multi- component, chemical curing, non-sagging, Shore 'A' Hardness Range of 20 to 35, black colour.

.1 Acceptable material: Dow Corning 795, NP-1.

.5 Silicone Sealant: CAN/CGSB-19.18M, single component, solvent curing, non-sagging, Shore 'A' Hardness Range of 35 to 45, black colour.

.1 Acceptable material: Dow Corning 999.

.6 Primer: Recommended by sealant manufacturer or appropriate to application.

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

2.3 Adhesives

.1 Mastic Adhesive Type 1: Compatible with sheet seal and substrate, thick mastic of uniform knife grade consistency.

.2 Adhesive Type 2: Compatible with sheet seal and substrate, permanently non-curing.

.3 Adhesive Tape:

.1 Construction tape 50 mm wide

.2 Adhesion: 550 ml/cm (50 oz/in.), peel adhesive 496 ml/cm (45+ oz/in).

.3 Acceptable material: Dupont.

2.4 Accessories

.1 Attachments: Galvanized steel bars and anchors.

.2 Fasteners: As recommended by manufacture given substrate material.

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.

.5 Texture Air and Vapour Barrier:

.1 Sheathing gaps shall not exceed 6.4mm. Larger gaps shall be corrected by replacing sheathing material.

.2 The Contractor shall notify the Contract Administrator of any discrepancies. Work shall not proceed until discrepancies have been corrected.

3.2 Preparation

.1 Remove loose or foreign matter that might impair adhesion of materials.

.2 Ensure all substrates are clean of oil or excess dust; all masonry joints struck flush, and open joints filled; and all concrete surfaces free of large voids, spalled areas or sharp protrusions.

.3 Ensure all substrates are free of surface moisture prior to application of self-adhesive membrane and primer.

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

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

3.3 Installation

.1 Install materials in accordance with manufacturer's instructions.

.1 Installation Guidelines for Commercial Wrap by Dupont or approved equal.

.2 Installation Guidelines for Non-Flanged Windows in commercial wall construction according to Dupont Tyvek Commercial Wrap air and water resistant barrier is installed.

.3 Installation Guidelines for Non-Flanged Windows in commercial Masonry wall construction with lintel according to Dupont Tyvek Commercial Wrap air and water resistant barrier is installed.

.4 Texture Air and Vapour Barrier:

.1 Embed Scrim Tape at all sheathing joints, including inside and outside corners. Tape may be used at rough openings and corner locations.

.2 Apply to a wet film thickness of 0.3 mm (12 mils) minimum over field of sheathing. May be applied using appropriate spray equipment and backrolled, rollers as described by manufacturer or by trowel.

.3 While still wet, using a trowel or spatula, smooth around all window and door perimeters, and other areas that will receive Transition Membrane.

.4 Allow to dry a minimum of 4 hours prior to application of membranes and adhesively applied EPS insulation board. Cool damp weather will require longer drying times. During cool, damp weather, Surface Conditioner may be necessary for proper adhesion of self-adhering membranes.

.5 Install the specified Exterior Insulation and Finish System per published installation instructions for the specific system being used.

.2 Secure building wrap to gypsum board materials as recommended by Manufacturer.

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

.4 Install as per wall types – Refer to Drawing A – 1 and as required/ recommended.

.5 Install adjacent block veneer.

.6 Follow drawings showing relationship between air barrier and bitumen over top of parapet wall.

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 Do not leave air barrier uncovered for more than 4 months.

.4 Ensure finished Work is protected from climatic conditions.

END OF SECTION

Part 1 General

1.1 Section Includes

.1 Performance criteria to achieve a continuous building enclosure air/vapour barrier.

1.2 Related Sections

.1 Section 03 30 00 - Cast-in-Place Concrete.

.2 Section 04 22 00 – Concrete Unit Masonry.

.3 Section 07 21 13 - Board Insulation.

.4 Section 07 26 00 - Vapour Retarders.

.5 Section 07 27 10 - Air Barriers – Descriptive or Proprietary.

.6 Section 07 46 13 - Preformed Metal Siding

.7 Section 07 92 10 - Joint Sealing.

1.3 References

.1 American Architectural Manufacturers Association (AAMA)

.1 AAMA 501, Methods of Test for Metal Curtain Walls.

.2 American Society for Testing and Materials (ASTM)

.1 ASTM E 783-93, Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.

.2 ASTM E 330-97e1, Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static air Pressure Difference.

.3 ASTM E 1186-98, Standard Practices for Air Leakage Site Detection in Building Envelope and Air Retarder Systems.

1.4 Performance Requirements

.1 Select and install wall and roof components and assemblies to resist air leakage caused by static air pressure across exterior wall and roof assemblies, including windows, glass, doors, roof hatches and other interruptions to integrity of wall and roof systems; to a maximum air leakage rate of 0.10 L/s.m^2 (cfm/sq ft) when subjected to a pressure differential of 75 Pa (1.57 lb/sq ft) as measured in accordance with ASTM E 73 ASTM E 330.

.2 If ongoing testing is required throughout the installation of the air/vapour barrier system, qualitative testing methods shall be performed in accordance with ASTM E 1186 ASTM D 4541.

.3 Provide continuity of air/vapour barrier materials and assemblies in conjunction with materials described in Section 03 30 00 - Cast-in-Place Concrete, 04 22 00 – Concrete Unit Masonry, 07 11 13 – Bituminous Damproofing, 07 21 13 - Board Insulation, 07 24 00 – Exterior Insulation and Finish Systems, Section 07 52 00 – Modified Bituminous Roofing Membrane and 07 92 10 - Joint Sealing.

1.5 Quality Assurance

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

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

.3 Perform Work in accordance with Canadian Urethane Foam Contractor=s Association - Professional Contractor Quality Assurance Program and requirements for materials and installation.

.4 Maintain one copy of documents on site.

1.6 Mock-up

.1 If requested by Contract Administrator, construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct typical exterior wall panel, 2.4 m long by 2.4 m wide, incorporating window openings with frame and sill installed, insulation, building corner condition, junction with roof system and; illustrating materials interface and seals.

.3 Locate where directed by Contract Administrator.

.4 Mock-up may remain as part of Work if indicated by Contract Administrator.

.5 Allow 24 h for inspection of mock-up by Contract Administrator before proceeding with air/vapour barrier work. Upon request, provide Contract Administrator with test data.

1.7 Pre- Installation Conference

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

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.

.3 Avoid spillage. Immediately notify Contract Administrator if spillage occurs and start clean up procedures.

.4 Clean spills and leave area as it was prior to spill.

1.9 Waste Management and Disposal

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

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

1.10 Sequencing

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

1.11 Warranty

.1 Warranty: Includes 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. Length: 2 years.

Part 2 Products

2.1 Materials

.1 Materials: As required to achieve specified performance criteria; functionally compatible with adjacent materials and components.

Part 3 Execution

3.1 Preparation

.1 Prepare substrate surfaces in accordance with air/vapour barrier material manufacturer's instructions.

3.2 Installation

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

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

.3 Apply sealants within recommended application temperature ranges.

3.3 Protection of Finished 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.

END OF SECTION

Part 1 General

1.1 Section Includes

.1 Materials and installation for wall systems comprising fibre reinforced cementitious or asbestos-cement composite panel.

1.2 Related Sections

.1 Section [01 33 00 - Submittal Procedures.

.2 Section [01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section [01 35 30 - Health and Safety Requirements.

.4 Section 05 50 00 – Metal Fabrications.

.5 Section 07 21 13 – Board Insulation.

.6 Section 07 21 16 – Blanket Insulation.

.7 Section 07 62 00 – Sheet Metal Flashing and Trim.

1.3 References

.1 Aluminum Association (AA).

.1 AA-DAF-45-[R03], Designation System for Aluminum Finishes.

.2 American Society for Testing and Materials International, (ASTM).

.1 ASTM A653/A653M-[02a], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 ASTM E96-[00e1], Standard Test Methods for Water Vapour Transmission of Materials.

.3 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-1.40-[97], Anticorrosive Structural Steel Alkyd Primer.

.2 CAN/CGSB 1-GP-71 Amendment 13-[1995], Methods of Testing Paints and Pigments (including Amendments 1 to 12 and Supplement No. 1).

.3 CAN/CGSB-34.16-[M89], Sheets, Asbestos-Cement, Flat, Fully Compressed.

.4 CAN/CGSB-34.17-[M89], Sheets, Asbestos-Cement, Flat, Semi-compressed.

.5 CAN/CGSB-34.18-[94], Low Density Asbestos Sheets.

.6 CAN/CGSB-34.21-[M89], Panels, Sandwich, Asbestos-Cement with Insulating Cores.

.7 CGSB 41-GP-6M-[83], Sheets, Thermosetting Polyester Plastics, Glass Fibre Reinforced.

.4 Department of Justice Canada (Jus).

.1 Canadian Environmental Protection Act (CEPA), 1999.

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

.1 Material Safety Data Sheets (MSDS).

.6 The Master Painters Institute (MPI).

.1 Architectural Painting Specification Manual - [March 1998 (R2002)].

.7 National Research Council (NRC).

.8 Transport Canada (TC).

.1 Transportation of Dangerous Goods Act (TDGA), 1992.

.9 Underwriters Laboratories' of Canada (ULC).

.1 CAN/ULC-S701-[01], Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.2 CAN/ULC-S702-[1997], Standard for Thermal Insulation, Mineral Fibre, for Buildings.

.3 CAN/ULC-S704-[2001], Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

.4 CAN/ULC-S706-[02], Standard for Wood Fibre Thermal Insulation for Buildings.

1.4 Design Requirements

.1 Design composite building panel wall to provide for thermal movement of component materials without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

.2 Include expansion joints to accommodate movement in wall system and between wall system and building structure, caused by structural movements, without permanent distortion, damage to infills, racking of joints, breakage of seals, or water penetration.

.3 Design members to withstand dead load and wind loads as calculated in accordance with NBC and applicable Municipal/Territorial regulations, to maximum allowable deflection of 1/180 of span.

.4 Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall in accordance with NRC "Rain Screen Principles".

1.5 Shop Drawings

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate dimensions, materials and finish, anchor details, compliance with design criteria and requirements of related work.

1.6 Samples

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit 150mm x 150mm samples of wall system, representative of materials, finishes and colours.

.3 Submit copies of specifications, installation data and other pertinent manufacturer's literature.

1.7 Waste Management and Disposal

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

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

.3 Collect and separate packaging material for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Place materials defined as hazardous or toxic in designated containers.

Part 2 Products

2.1 Materials

.1 Siding panels

.1 Non-asbestos fiber-cement siding to comply with ASTM standard specification C1186 Grade 2, type A

.2 Autoclaved manufactured non-asbestos fibre-cement siding panels composed of Portland cement, ground sand, cellulose fibre, select additives and water, characteristics as follows:

.1 Thickness: 8 mm

.2 Weight: 11.23 kg/m2

.3 Siding sizes : 100mm nominal

.4 Rot, water and salt resistant.

.5 Flexural strength to ASTM C1185/86 Grade II Type A:Longitudinal:12.75 kPa Tranverse: 17.24 kPa

.6 Non-combustibility to ASTM E136: Non-combustible.

.7 Surface Burning Characteristics (ASTM E-84):

.8 Flame spread: 0

.9 Fuel contributed: 0

.10 Smoke developed: 5

.11 Finish:

.1 As selected from manufacturers full range. Pre-primed for paint finish.

.2 Acceptable products:

.1 HardiPanel by James Hardie or alternates as approved by Contract Administrator

.1 Type: Smooth vertical siding panel, 1220mm x 2438mm.

2.2 Accessories

.1 Underlayment: dry sheathing to CAN/CGSB-51.32

.2 Wood Furring and blocking – see Section 06 10 00 – Rough Carpentry

.3 Fasteners: Hot-dipped galvanized siding nails (6mm dia.) to penetrate panels and into backing

.4 Patching compound: Cementitious patching compound compatible with the siding panels and as approved by the manufacturer.

.5 Metal flashings and trims as specified.

.6 Sealants as specified – see Section 07 92 00 Joint Sealing.

.7 Paint finish as per Section 09 91 13.

Part 3 Execution

3.1 Installation

.1 Install siding in strict accordance with the manufacturer's printed instructions.

.2 Do not commence installation until the substrate has been inspected and approved by Contract Administrator.

.3 Provide underlayment over the entire area to be covered by siding. Secure in place and lap joints as per manufacturers instructions.

.4 Install sill flashings, wood starter strips, edgings and flashings over openings.

.5 All Work to be nail fastened. Space fasteners in accordance with the siding material manufacturer's recommendations for the site wind zone conditions.

.6 .7 Locate fasteners 10 mm back from panel edge and 50 mm from panel corners. Take special care to neatly align and equally space fastenings. Ensure solid backing and max. pressure to air guns to be 80 p.s.i. to prevent cracking panels.

.7 Finish joints as indicated on the drawings and manufacturer’s instructions.

3.2 **Patching**

.1 Fill surface defects with cementitious patching compound and leave ready for paint finish by Section 09 91 13 - Exterior Painting.

3.3 Cleaning

.1 Wash down exposed acrylic exterior surfaces using solution of mild domestic detergent in warm water, applied with soft clean wiping cloths.

.2 Wash down exposed aggregate exterior surfaces using fine water spray.

.3 Remove excess sealant with recommended solvent.

END OF SECTION

Part 1 General

1.1 Section Includes

.1 Requirements for the installation of preformed metal soffits, fascia and canopy.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 07 61 00 - Sheet Metal Roofing.

.4 Section 07 62 00 - Sheet Metal Flashing and Trim.

.5 Section 07 92 10 - Joint Sealing.

1.3 References

.1 American National Standards Institute (ANSI).

- .1 ANSI B18.6.4-99, Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws.

.2 American Society for Testing and Materials International, (ASTM).

- .1 ASTM D2369-03, Test Method for Volatile Content of Coatings.
- .2 ASTM D2832-92(R1999), Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
- .3 ASTM D5116-97, Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.

.3 Canadian General Standards Board (CGSB).

- .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .2 CAN/CGSB-93.2-M91, Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use.
- .3 CAN/CGSB-93.3-M91, Prefinished Galvanized and Aluminum-Zinc Alloy Steel Sheet for Residential Use.
- .4 CAN/CGSB-93.4-92, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
- .5 CGSB 93.5-92, Installation of Metal Residential Siding, Soffits and Fascia.

.4 Canadian Standards Association (CSA International).

- .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.5 Environmental Choice Program (ECP).

- .1 CCD-045-95, Sealants and Caulking Compounds.

.6 Underwriters' Laboratories of Canada (ULC).

.1 CAN/ULC-S706-02, Wood Fibre Thermal Insulation for Buildings.

1.4 Submittals

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

.1 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for caulking materials during application and curing.

.2 Shop Drawings:

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

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

.3 Samples:

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate 400 x 400 mm samples of materials, of colour and profile specified.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.5 Quality Assurance

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

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

.3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section.

1.6 Waste Management and Disposal

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

.2 Divert used metal cut-offs from landfill by disposal into the on-site metals recycling bin removed for disposal at the nearest metal recycling facility.

.3 Divert reusable materials for reuse at nearest used building materials facility.

.4 Divert unused caulking, sealants, and adhesive materials from landfill through disposal at hazardous material depot.

Part 2 Products

2.1 Steel Cladding and Components

.1 Soffit Panel System: to CAN/CGSB-93.2, Type A, Class 1, vertical:

- .1 Colour: Charcoal.
- .2 Profile:
  - .1 AD 300SR, VicWest; preformed interlocking joints, fastener holes prepunched or approved equal by Contract Administrator.
- .3 Pattern: Perforated as notated.
- .4 Vented.
- .5 Thickness: 0.76mm, 22 gauge.
- .6 Acceptable material: Steel.
  - .1 Finish coating: Class F1S.
  - .2 Colour: HMP VW 6072 Charcoal or equal as approved by Contract Administrator.
  - .3 Backing: wood fibre composite board Type II to CAN/ULC-S706 19mm thick.

.2 Fascia: See Section 07 62 00 - Prefinished Metal for metal characteristics with suggested Manufacturer/colour or approved alternative:

- .1 Acceptable Product: Vic West Standard steel wall cladding CL815SR - fascia siding.
  - .1 Class F1S, 0.76mm thickness, (Imperial Standard, SWG), 14mm rib depth, 36mm rib profile width.
  - .2 Lengths: single length. Nesting is not acceptable. See schedule for paneling location.
- .2 Acceptable Equals: as approved by Contract Administrator
- .3 Panel (field) Colour: HMP VW 6072 Charcoal.
- .4 Fasteners: Non-corrosive self tapping screw to length required.
  - .1 Finish: exposed fasteners to match panel.

.3 Prefinished Aluminum Canopy:

- .1 Canopy fascia to be aluminum as per drawings.
- .2 Finish: factory applied coating to CAN/CGSB-93.1 supplemented and amended as follows:
  - .1 Type 1.
  - .2 Class F1S.
  - .3 Colour: clear anodized.
- .3 Outdoor exposure period: 10 years.
- .4 Thickness: .063 inches, or 1.6 mm or as noted on drawings.

2.2 Accessories

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

.2 Unexposed trim: Undersill trim can be of neutral colour.

.3 Non-exposed accessories: as required.

.4 Z-bars to 100mm depth required and 18 gauge or as required.

.5 "J" end of rigid insulation at all openings of 1.5mm thickness (16 gauge).

.1 Sizes: 76 x 100 x 152mm or as required.

2.3 Fasteners

.1 Nails: CSA B111. Screws: ANSI B18.6.4. Purpose made aluminum alloy.

.2 Z-bar fasteners as required.

.3 Tapcon fasteners as required.

2.4 Caulking

.1 Sealants: Section 07 92 10 – Joint Sealing.

2.5 Bitumen

.1 Asphalt: Type 2 asphalt to CAN/CSA A123.4. Provide EVT, FBT and Flash Point Temperature.

.1 Acceptable material: Iko or approved equal.

2.6 Polystyrene Insulation

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

.2 Acceptable material: Dow Styrofoam.

2.7 Sheathing Paper

.1 Exterior wall sheathing paper: to CAN2-51.32, single ply spunbound olefin type.

.1 Acceptable Material: Environmental Choice Certification Program ECP-69.

.2 See Section 07 27 10 – Air Barriers: Descriptive or Proprietary.

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 cladding in accordance with CGSB 93.5, and manufacturer's written instructions.

.2 Install one layer exterior wall air/vapour barrier.

.3 Install rigid insulation according to Manufacturers instructions and tight to horizontal Z bars.

.4 Install horizontal Z bars at 600 o.c. intervals.

.5 Fill gaps between boards with foam insulation.

.6 Apply bitumen mastic seal over all Z bar connectors.

.7 Install continuous starter strips, inside and outside corners, edgings, drip, cap, sill and window/door opening flashings as indicated. Follow Manufacturers instructions.

.8 Install outside corners, fillers and closure strips with carefully formed and profiled work. Follow Manufacturers instructions.

.9 Install P.T. wood blocking where shown.

.10 Install fascia, soffits and canopy as shown.

.11 Maintain joints in exterior profiles, true to line, tight fitting, hairline joints.

.12 Attach components in manner not restricting thermal movement.

.13 Caulk only as required. Do work in accordance with Section 07 92 10 - Joint Sealing.

3.3 Cleaning

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

END OF SECTION

Part 1 General

1.1 Section Includes

.1 Materials and installation for modified bituminous roofing for either conventional build up roofing (BUR) or protected membrane roofing (PMR) systems.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 45 00 - Quality Control.

.3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Section 01 78 00 - Closeout Submittals.

.5 Section 02 61 33 - Hazardous Materials: Submission Requirements for WHMIS MSDS.

.6 Section 05 31 00 - Steel Decking.

.7 Section 06 10 00 - Rough Carpentry.

.8 Section 07 62 00 - Sheet Metal Flashing and Trim.

.9 Section 07 92 10 - Joint Sealing.

.10 Mechanical Drawings - Plumbing Specialties and Accessories: drains hoppers.

1.3 References

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

.1 ASTM C36/C36M-01, Standard Specification for Gypsum Wallboard.

.2 ASTM C726-00a, Standard Specification for Mineral Fiber Roof Insulation Board.

.3 ASTM D41-94(2002)e1, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.

.4 ASTM D312-00, Asphalt Used in Roofing.

.5 ASTM D448-03, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.

.6 ASTM D2178-97a, Asphalt Glass Felt Used in Roofing and Waterproofing.

.7 ASTM D6162-00a, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fibre Reinforcements.

.8 ASTM D6163-00e1, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fibre Reinforcements.

.9 ASTM D6164-00, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

.2 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.

.2 CGSB 37-GP-9Ma-83, Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing.

.3 CGSB 37-GP-15M-84, Application of Asphalt Primer for Asphalt Roofing, Dampproofing and Waterproofing.

.4 CGSB 37-GP-19M-85, Cement, Plastic, Cutback Tar.

.5 CAN/CGSB-37.29-M89, Rubber-Asphalt Sealing Compound.

.6 CGSB 37-GP-56M-80b(A1985), Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.

.7 CAN/CGSB-51.33-M89, Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.

.3 Canadian Roofing Contractors Association (CRCA).

.1 CRCA Roofing Specifications Manual-1997.

.4 Canadian Standards Association (CSA International).

.1 CAN/CSA-A123.3-98, Asphalt Saturated Organic Roofing Felt.

.2 CAN/CSA-A123.4-98, Asphalt for Use in Construction of Built-Up Roof Coverings and Waterproofing Systems.

.3 CSA A231.1-99, Precast Concrete Paving Slabs.

.4 CSA O121-M1978(R1998), Douglas Fir Plywood.

.5 CSA O151-M1978(R1998), Canadian Softwood Plywood.

.5 Department of Justice Canada (Jus).

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.6 Factory Mutual (FM Global).

.1 FM Approvals - Roofing Products.

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

.1 Material Safety Data Sheets (MSDS).

.8 Transport Canada (TC).

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.9 Underwriters Laboratories' of Canada (ULC).

.1 CAN/ULC-S701-01, Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.2 CAN/ULC-S704-2001, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

.3 CAN/ULC-S706-02, Standard for Wood Fibre Thermal Insulation for Buildings.

1.4 Performance Requirements

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

1.5 Submittals

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

.2 Submit two copies of most recent technical roofing components data sheets describing materials' physical properties.

.3 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 61 33 - Hazardous Materials.

.1 Indicate VOC content for:

Primers.

Asphalt.

Sealers.

Filter fabric.

.4 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.5 Indicate flashing, control joints, tapered insulation details.

.6 Provide layout for tapered insulation.

.7 Samples: submit two (2) sample 2.2 kg containers of roofing aggregate pavers 305 mm long pieces of XPS insulation.

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

.9 Manufacturer's Certificate: certify that products meet or exceed specified requirements.

.10 Manufacturer's field report: in accordance with Section 01 45 00 - Quality Control.

.11 Reports: indicate procedures followed, ambient temperatures and wind velocity during application.

1.6 Quality Assurance

.1 Submit laboratory test reports in accordance with Section 01 45 00 - Quality Control.

.2 Submit laboratory test reports certifying compliance of bitumens and membrane with specification requirements.

1.7 Health and Safety

.1 Do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.

1.8 Storage and Handling

.1 Provide and maintain dry, off-ground weatherproof storage.

.2 Store rolls of felt and membrane in upright position. Store membrane rolls with selvage edge up.

.3 Remove only in quantities required for same day use.

.4 Place plywood runways over completed Work to enable movement of material and other traffic.

.5 Store sealants at +5 degrees C minimum.

.6 Store insulation protected from daylight and weather and deleterious materials.

.7 Handle roofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance.

1.9 Protection

.1 Fire Extinguishers: maintain one cartridge operated type or stored pressure rechargeable type with hose and shut-off nozzle, ULC labelled for A, B and C class protection. Sizes 1.14 2.25 4.5 9 and 14 kg or as indicated on roof per torch applicator, within 6 m of torch applicator.

.2 Maintain fire watch for 1 hour after each day's roofing operations cease.

1.10 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Separate for reuse and recycling and place in designated containers Steel Metal Plastic waste in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with, Regional and Municipal regulations.

.7 Clearly label location of salvaged material's storage areas and provide barriers and security devices.

.8 Ensure emptied containers are sealed and stored safely.

.9 Divert unused metal materials from landfill to metal recycling facility as approved by Contract Administrator.

.10 Divert unused aggregate materials from landfill to local quarry facility for reuse as reviewed by Contract Administrator.

.11 Unused paintcoating material must be disposed of at official hazardous material collections site as reviewed by Contract Administrator.

.12 Unused adhesive, sealant and asphalt materials must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.13 Dispose of unused adhesive material at official hazardous material collections site approved by Contract Administrator.

.14 Dispose of unused sealant material at official hazardous material collections site approved by Contract Administrator.

.15 Dispose of unused asphalt material at official hazardous material collections site approved by Contract Administrator.

.16 Divert unused gypsum materials from landfill to recycling facility as reviewed by Contract Administrator.

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

1.11 Environmental Requirements

.1 Do not install roofing when temperature remains below -18 degrees C for torch application, or -5 degrees C to manufacturers' recommendations for mop application.

.2 Minimum temperature for solvent-based adhesive is -5 degrees C.

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

1.12 Warranty

.1 For the Work of this Section 07 52 00 - Modified Bituminous Membrane Roofing, the warranty period is 60 months.

.2 Contractor hereby warrants that modified bituminous roofing and membrane flashings will stay in place and remain leakproof for five years minimum.

Part 2 Products

2.1 Deck Primer

.1 Asphalt primer: to CGSB 37-GP-9Ma ASTM D41.

.1 Acceptable material: Soprema, Iko, Bakor.

2.2 Vapour Retarder

.1 Two-ply bituminous membrane consisting of:

.1 No. 15 asphalt saturated organic roofing felts to CAN/CSA A123.3.

Acceptable material: Soprema, Iko, Bakor.

.2 Type 2 asphalt to CAN/CSA A123.4. Provide EVT, FBT and Flash Point Temperature.

Acceptable material: Iko or approved equal.

2.3 Membrane

.1 Base sheet: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, glass or polyester reinforcement, weighing 180 g/m2.

.1 Type 1, mopped on.

Acceptable material: Soprema, Iko, Bakor.

.2 Cap sheet: to CGSB 37-GP-56M, Styrene-Butadiene-Styrene (SBS) elastomeric polymer, prefabricated sheet, glass polyester reinforcement, weighing 250 g/m^2.

.1 Acceptable material: Soprema, Iko, Bakor.

2.4 Overlay Board

.1 Overlay Board: 2 x 12.5 mm asphalt regular fiberboard.

2.5 Ice and Water Shield

.1 Install to manufactures instructions.

.2 Refer to Drawings.

2.6 Bitumen

.1 Asphalt: to CAN/CSA A123, Type 2.

.2 Peel and Stick Membrane: Refer to Drawings.

2.7 Polystyrene Insulation

.1 Expanded polystyrene (EPS) insulation to CAN/ULC-S701, Type I, thickness as indicated mm, square edges. Only polystyrene insulation listed on CGBS Qualified Products List (51 GP Series) are acceptable for use on this project.

2.8 Fluted Deck Pan Insulation

.1 Type Deck Pan. Standard sizes: Custom trapezoidal strips to standard length 914mm. refer to Section 05 31 00 – Steel Decking.

2.9 Insulating Fibreboard

.1 To CAN/ULC-S706, Type 1-roof board, surface coated, 12.7 mm thick.

2.10 Sealers

.1 Plastic cement: asphalt, to CAN/CGSB-37.5 coal tar, to CGSB 37-GP-19M.

.2 Sealing compound: to CAN/CGSB-37.29, rubber asphalt type.

.3 Sealants: Caulking - see Section 07 92 10 - Joint Sealing.

2.11 Carpentry

.1 Refer to Section 06 10 00 - Rough Carpentry.

2.12 Fasteners

.1 Covering to steel deck: No. 10 flat head, self tapping, Type A or AB, cadmium plated screws.

.2 Insulation to deck: coated insulation fasteners and galvanized plates must meet FM Approval for wind uplift and corrosion resistance, as recommended by insulation manufacturer.

2.13 Foam Insulation

.1 Class 1 Foam Insulation – Refer to Section 07 21 31 – Foam-in-place Insulation.

Part 3 Execution

3.1 Workmanship

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

.2 Do priming for asphalt roofing in accordance with CGSB 37-GP-15M.

.3 The interface of the walls and roof assemblies will be fitted with durable rigid material sheet metal plywood providing connection point for continuity of air barrier.

.4 Assembly, component and material connections will be made in consideration of appropriate design loads, with reversible mechanical attachments.

3.2 Examination of Roof Decks

.1 Inspect with Contract Administrator deck conditions including parapets, construction joints, roof drains, plumbing vents and ventilation outlets to determine readiness to proceed.

.2 Prior to beginning of work ensure:

.1 Decks are firm, straight, smooth, dry, free of snow, ice or frost, and swept clean of dust and debris. Do not use calcium or salt for ice or snow removal.

.2 Curbs have been built.

.3 Roof drains have been installed at proper elevations relative to finished roof surface.

.4 Plywood and lumber nailer plates have been installed to deck, walls and parapets as indicated.

.3 Do not install roofing materials during rain or snowfall.

3.3 Protection

.1 Cover walls, walks, slopped roofs and adjacent work where materials hoisted or used.

.2 Use warning signs and barriers. Maintain in good order until completion of Work.

.3 Clean off drips and smears of bituminous material immediately.

.4 Dispose of rain water off roof and away from face of building until roof drains or hoppers installed and connected.

.5 Protect roof from traffic and damage. Comply with precautions deemed necessary by Contract Administrator.

.6 At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.

.7 Metal connectors and decking will be treated with rust proofing or galvanization.

3.4 Preparation of Steel Deck (channel Type)

.1 Steel decking will be treated with rust proofing or galvanization.

3.5 Vapour Retarder (Steel Deck)

.1 Adhere vapour retarder using solvent based adhesive as per manufacturer's instructions.

3.6 Exposed Membrane Roofing Application

.1 Insulation: fully adhered, bitumen application:

.1 Embed insulation in 1 to 1.5 kg/m^2 mopping of bitumen.

.2 Place boards in parallel rows with ends staggered, and in firm contact with one another.

.3 Cut end pieces to suit.

.2 Tapered insulation application:

.1 Mop insulation to vapour retarder and top layer of insulation to bottom layer with hot asphalt at rate of 1 kg/m^2.

.2 Install tapered insulation as first second insulation layer, in accordance with shop drawings. Stagger joints between layers 150 mm minimum.

.3 Overlay Board: adhesive application:

.1 Adhere overlay board to insulation with Type II Asphalt. Refer to Section 07 26 00 – Vapour Retarders.

.2 Place boards in parallel rows with end joints staggered. Cap joints approximately 25 mm.

.4 Base sheet application:

.1 Starting at low point of roof, perpendicular to slope, unroll base sheet, align and reroll from both ends.

.2 Unroll and embed base sheet in uniform coating of asphalt applied at rate of 1.2 kg/m^2, at 230 degrees C.

.3 Lap starter sheet 900mm minimum.

.4 Lap sheets 75 mm minimum for side and 150 mm minimum for end laps.

.5 Application to be free of blisters, wrinkles and fishmouths.

.5 Cap sheet application:

.1 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends.

.2 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement.

.3 Lap sheets 75 mm minimum for side laps and 150 mm minimum for end laps. Offset joints in cap sheet 300 mm minimum from those in base sheet.

.4 Application to be free of blisters, fishmouths and wrinkles.

.5 Do membrane application in accordance with manufacturer's recommendations.

.6 Flashings:

.1 Complete installation of flashing base sheet stripping prior to installing membrane cap sheet.

.2 Nail mop torch base and cap sheet onto substrate in 1 metre wide strips.

.3 Lap flashing base sheet to membrane base sheet minimum 150 mm and seal by mopping or torch welding.

.4 Lap flashing cap sheet to membrane cap sheet 250 mm minimum and torch weld.

.5 Provide 75 mm minimum side lap and seal.

.6 Properly secure flashings to their support, without sags, blisters, fishmouths or wrinkles.

.7 Do work in accordance with manufacturer's recommendations Section 07 62 00 - Sheet Metal Flashing and Trim.

.7 Roof penetrations:

.1 Install roof drain pans, vent stack covers and other roof penetration flashings and seal to membrane in accordance with manufacturer's recommendations and details and Section.

.2 Ensure tight fit of rigid insulation to items penetrating the roof. Use spray foam fill and seal gaps prior to installing base and cap bituminous sheets.

3.7 Protected Membrane Roofing (pmr) Application

.1 Primer:

.1 Apply deck primer to gypsum deck at rate specified on label.

.2 Base sheet application:

.1 Starting at low point of roof, perpendicular to slope, unroll base sheet, align and reroll from both ends.

.2 Unroll and embed base sheet in uniform coating of asphalt applied at rate of 1.2 kg/m2, EVT at point of contact.

.3 Unroll and torch base sheet onto substrate taking care not to burn membrane or its reinforcement or substrate.

.4 Lap sheets 75 mm for side and 150 mm for end laps.

.5 Application to be free of blisters, wrinkles and fishmouths.

.3 Cap sheet application:

.1 Starting at low point on roof, perpendicular to slope, unroll cap sheet, align and reroll from both ends.

.2 Unroll and embed cap sheet in uniform coating of asphalt applied at rate of 1.2 kg/m2, EVT at point of contact.

.3 Unroll and torch cap sheet onto base sheet taking care not to burn membrane or its reinforcement.

.4 Lap sheets 75 mm minimum for side laps and 150 mm minimum for end laps. Offset joints in cap sheet 300 mm from those in base sheet.

.5 Application to be free of blisters, fishmouths and wrinkles.

.6 Do membrane application in accordance with manufacturer's recommendations.

.4 Flashings:

.1 Complete installation of flashing base sheet stripping prior to installing membrane cap sheet.

.2 Mop or Torch base sheet onto substrate in 1 metre wide strips.

.3 Lap flashing base sheet to membrane base sheet minimum 150 mm and seal by mopping or torch welding.

.4 Lap flashing cap sheet to membrane cap sheet 250 mm and torch weld.

.5 Provide 75 mm side lap and seal.

.6 Properly secure flashings to their support, without sags, blisters, fishmouths or wrinkles.

.7 Do Work in accordance with manufacturer's recommendations Section 07 62 00 - Sheet Metal Flashing and Trim.

.5 Roof penetration:

.1 Install roof drain pans, vent stack covers and other roof penetration flashings and seal to membrane in accordance with the manufacturer's recommendations and as detailed.

.6 Insulation application:

.1 Place insulation, channel cut face down, loose laid in parallel rows with ends staggered.

.2 Where insulation is in contact with cants bevel insulation edges to fit snug to cant slope.

.7 Filter fabric application:

.1 Apply fabric unbonded over installed insulation.

.2 Overlap edges 300 mm minimum.

.3 Cut fabric around roof drains, vents and other penetrations and extend under metal flashings.

3.8 Field Quality Control

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

.2 Contract Administrator will pay for tests as specified in Section 01 45 00 - Quality Control.

3.9 Cleaning

.1 Remove bituminous markings from finished surfaces.

.2 In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.

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

END OF SECTION

Part 1 General

1.1 Section Includes

.1 Materials and installation for sheet metal roofing including mansard roofs.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 02 61 33 - Hazardous Materials.

.4 Section 01 45 00 - Quality Control.

.5 Section 05 31 00 – Steel Roof Deck.

.6 Section 07 46 13 – Prefinished Metal Siding.

.7 Section 07 62 00 – Sheet Metal Flashing and Trim

.8 Section 07 92 10 - Joint Sealing.

1.3 References

.1 Aluminum Association (AA).

.1 AA DAF-45-R03, Designation System for Aluminum Finishes - 9th Edition.

.2 AA ASM-35-October 2000, Specifications for Aluminum Sheet Metal Work in Building Construction, Section 5.

.2 American Society for Testing and Materials International, (ASTM).

.1 ASTM A167-99, Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

.2 ASTM A240/A240M-02a, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

.3 ASTM A653/A653M-02a, 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 B32-00e1, Standard Specification for Solder Metal.

.6 ASTM B370-98, Standard Specification for Copper Sheet and Strip for Building Construction.

.7 ASTM D523-89(1999), Standard Test Method for Specular Gloss.

.8 ASTM D822-01, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

.3 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.

.2 CAN/CGSB-37.29-M89, Rubber-Asphalt Sealing Compound.

.3 CAN/CGSB-51.32- M77, Sheathing, Membrane, Breather Type.

.4 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

.4 Canadian Standards Association (CSA International).

.1 CAN/CSA A123.3-98, Asphalt Saturated Organic Roofing Felt.

.5 Department of Justice Canada (Jus).

.1 Canadian Environmental Protection Act (CEPA), 1999.

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

.1 Material Safety Data Sheets (MSDS).

.7 National Research Council Canada (NRC)/Institute for Research in Construction (IRC) - Canadian Construction Materials Centre (CCMC).

.1 CCMC-2002, Registry of Product Evaluations.

.8 Transport Canada (TC).

.1 Transportation of Dangerous Goods Act (TDGA), 1992.

1.4 Submittals

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

.2 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures and details.

.3 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.4 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 61 33 - Hazardous Materials. WHMIS acceptable to Labour Canada, and Health and Welfare Canada for Manitoba.

.5 Submit product data sheets for bitumen roofing felts insulation. Include:

.1 Product characteristics.

.2 Performance criteria.

.3 Limitations.

.6 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.7 Indicate arrangements of sheets and joints, types and locations of fasteners and special shapes and relationship of panels to structural frame.

.8 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.9 Submit duplicate 300 x 300mm samples of each sheet metal material.

1.5 Quality Assurance

.1 Submit mock-ups in accordance with Section 01 45 00 - Quality Control.

.2 Fabricate 300 x 300mm sample roofing panel using identical project materials and methods to include typical seam.

.3 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.4 Locate where directed where indicated.

.5 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with sheet metal flashing work.

.6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. Approved mock-up may not remain as part of finished Work. Remove mock-up and dispose of materials when no longer required and when directed by Contract Administrator.

1.6 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Separate for reuse and recycling and place in designated containers in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.7 Ensure emptied containers are sealed and stored safely.

.8 Divert unused metal materials from landfill to metal recycling facility as approved by Contract Administrator.

.9 Unused paint, caulking, and sealing compound materials must be disposed of at an official hazardous material collections site as approved by Contract Administrator.

.10 Unused paint, caulking, and sealing compound materials must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

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

Part 2 Products

2.1 Prefinished Steel Sheet

.1 Prefinished steel with factory applied polyvinyl chloride.

.1 Class F1S.

.2 Colour selected by Contract Administrator from manufacturer's standard range.

.3 Specular gloss: 30 units +/-5 to ASTM D523.

.4 Coating thickness: not less than 200 micrometres.

.5 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:

.1 Outdoor exposure period 5000 hours.

.2 Humidity resistance exposure period 5000hours.

.6 Acceptable Product:

.1 Prefinished perforated roof deck:

.1 COM – BLD component system AWR by Behlen Industries

.1 Grade: 230

.2 Equals: as approved by Contract Administrator

.3 Colour: as selected by Contract Administrator.. Submit actual colour samples upon request.

2.2 Accessories

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB-37.5.

.3 Underlay: Ice and water shield as indicated in Drawings.

.4 Sealant: Asbestos-free sealant, compatible with systems materials, recommended by system manufacturer Caulking see Section 07 92 10 - Joint Sealing.

.5 Rubber-asphalt sealing compound: to CAN/CGSB-37.29.

.6 As required: Cleats, Fasteners, and Washers.

.7 Touch-up paint: as recommended by sheet metal roofing manufacturer.

2.3 Fabrication

.1 Panels and accessories as fabricated by manufacturer.

Part 3 Execution

3.1 Installation

.1 Use concealed fastenings except where approved by Contract Administrator before installation.

.2 Provide underlay under sheet metal roofing. Secure in place and lap joints 100 mm minimum.

.3 Install sheet metal roof panels according to manufacturer's instructions.

.4 Flash roof penetrations with material matching roof panels, and make watertight.

.5 Form seams in direction of water-flow and make watertight.

.6 Clean and flux metals before soldering.

3.2 Gutters

.1 Exposed prefinished gutters.

.2 Extend flashing up under the roof panel (300) and drip into gutter.

.3 Attach gutter to face of prefinished metal panel fascia as specified.

3.3 Schedule

.1 Prefinished perforated roof deck:

.1 Gymnasium Roof.

.2 Prefinished Steel Sheet:

.1 Pitched roof over exitsing building.

END OF SECTION

Part 1 General

1.1 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 04 22 00 – Masonry Units.

.4 Section 07 46 13 – Performed Metal Soffits, Fascia and Canopy.

.5 Section 07 61 00 – Sheet Metal Roofing

.6 Section 08 11 14 – Metal Door and Frames.

.7 Section 08 50 00 – Windows.

1.2 References

.1 The Aluminum Association Inc. (AA)

.1 Aluminum Sheet Metal Work in Building Construction-2000.

.2 AA DAF45-97, Designation System for Aluminum Finishes.

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

.1 ASTM 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 D523-89(1999), Standard Test Method for Specular Gloss.

.5 ASTM D822-01, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

.3 Canadian Roofing Contractors Association (CRCA)

.1 Roofing Specifications Manual 1997.

.4 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement.

.2 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.

.3 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

.5 Canadian Standards Association (CSA International)

.1 CSA A123.3-98, Asphalt Saturated Organic Roofing Felt.

.2 CSA-A440-00/A440.1-00 - A440-00, Windows / Special Publication A440.1-00, User Selection Guide to CSA Standard A440-00, Windows.

.3 CSA B111-1974(R1998), Wire Nails, Spikes and Staples.

1.3 Samples

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, colour and finish.

1.4 Waste Management and Disposal

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

.2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Ensure emptied containers are sealed and stored safely for disposal away from children.

.6 Divert unused metal materials from landfill to metal recycling facility as approved by Contract Administrator.

.7 Unused paint and sealant material must be disposed of at an official hazardous material collections site as approved by Contract Administrator.

.8 Unused paint and sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

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

Part 2 Products

2.1 Sheet Metal Materials

.1 Zinc coated (galvanized) steel sheet: commercial quality to ASTM A 653/A 653M, with Z275 (G90) designation zinc coating. To MPI Standards.

.1 Thickness: 0.792mm core thickness steel (22 gauge).

2.2 Prefinished Steel Sheet

.1 Prefinished steel with factory applied silicone modified polyester.

.1 Class F1S.

.2 Thickness: 0.792mm core thickness steel (22 gauge)

.3 Colour as selected by Contract Administrator from manufacturer's standard range.

.4 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.

.5 Coating thickness: not less than 20 micrometres.

.6 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:

.1 Outdoor exposure period 1000 hours.

.2 Humidity resistance exposure period 1000 hours.

.3 Acceptable Material:

.1 VicWest HMP 8000 Series.

.2 Behlen, HMP 8000 Series.

.2 Prefinished Metal Flashing and Trim

.1 Trim to drain.

.2 Colour: Silver Metallic Finish - factory applied coating to CAN/CGSB – 93.1 supplemented and amended as follows:

.1 Type 1; Class F1S.

.2 Outdoor exposure: 10+ years.

.3 Thickness as indicated in the drawings.

.4 Gloss: Medium.

.3 Profile: Flat.

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: Sections 07 92 10 – Joint Sealing.

.1 Accecptable: Dow Corning 795, Silglaze, clear.

.5 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.

.6 Fasteners: of same material as sheet metal, to CSA B111, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.

.7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.8 Touch-up paint: as recommended by prefinished material manufacturer. To MPI Standards.

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

.1 Thickness: 0.76 mm base metal thickness.

.2 Metallic Silver.

.10 Unexposed trim: Undersill trim can be of neutral colour.

.11 Non-exposed accessories: as required.

.12 Z-bars to 100mm depth required and 18 gauge or as required.

.13 "J" end of rigid insulation at all openings of 1.5mm thickness (16 gauge).

.1 Sizes: 76 x 100 x 152mm or as required.

.14 Z-bar fasteners as required.

.15 Tapcon fasteners as required.

2.4 Fabrication

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details and as shown on the drawings.

.2 Form pieces in 3000 mm maximum lengths. Make allowance for expansion at joints.

.3 Hem exposed edges on underside 12 mm. Miter and seal corners with sealant.

.4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

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

2.5 Metal Flashings

.1 Form flashings, copings and fascias to profiles indicated of .792mm thick (gauge 22) prefinished steel.

2.6 Reglets and Cap Flashings

.1 Form recessed surface mounted reglets metal cap flashing of .51 mm thick, 4.88 kg/m2 copper sheet metal to be built-in masonry work for base flashings as detailed in accordance with CRCA FL series details good practice. Provide slotted fixing holes and steel/plastic washer fasteners.

2.7 Parapet Flashing

.1 200mm prefinished metal parapet flashing.

.1 As shown in drawings: all flat roof assemblies.

2.8 Scupper

.1 Form canopy scuppers from .0.792mm core thickness (22 gauge) prefinished steel sheet metal .

.2 Sizes: 100mm high and 150mm wide to profiles as shown.

2.9 Downspouts

.1 Form canopy downspouts from .0.792mm core thickness (22 gauge) prefinished steel sheet metal.

.2 Sizes: 100 mm high and 100 mm wide to profiles as shown.

.3 Ties across at 900 +/- intervals

2.10 Canopy Gutters

.1 Form canopy gutters from .0.792mm core thickness (22 gauge) prefinished steel sheet metal.

.2 Sizes: 100 mm high and 100 mm wide to profiles as shown.

.3 Ties across at 900 +/- intervals

Part 3 Execution

3.1 Installation

.1 Install sheet metal work in accordance with CRCA FL series details and as detailed.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal. Secure in place and lap joints 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.

.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 Schedule

.1 Scuppers

.2 Gutters

.3 Downspouts

.4 Window flashings

.5 Parapet, sill and other flashing conditions as shown.

.6 Cap Flashing and Trim.

.7 Roof Soffits.

.8 Exterior Grilles and Exhausts.

.9 As shown in Drawings.

END OF SECTION

Part 1 General

1.1 Related Work

.1 Fire stopping and smoke seals within mechanical assemblies (i.e inside ducts, dampers) and electrical assemblies (i.e. inside cable trays) are specified in Mechanical Divisions 22 and 23 and Electronic Safety and Security Division 26 respectively.

1.2 References

.1 Underwriters Laboratories of Canada (ULC)

.1 ULC-S115-[1995], Fire Tests of Firestop Systems.

1.3 Samples

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

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

1.4 Shop Drawings

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

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

1.5 Product Data

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.

1.6 Waste Management and Disposal

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

.2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 Materials

.1 Fire stopping and smoke seal systems: in accordance with ULC-S115.

.1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of ULC-S115 and not to exceed opening sizes for which they are intended.

.2 Firestop system rating: 1 hour.

.2 Service penetration assemblies: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.

.3 Service penetration firestop components: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.13 and ULC Guide No.40 U19.15 under the Label Service of ULC.

.4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.

.5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.

.6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.

.7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

.8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

.9 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.10 Sealants for vertical joints: non-sagging.

Part 3 Execution

3.1 Preparation

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.

.4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.2 Installation

.1 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to a neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

3.3 Inspection

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

3.4 Schedule

.1 Firestop and smoke seal at:

.1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board walls and ceilings.

.2 Intersection of fire-resistance rated masonry and gypsum board partitions.

.3 Intersection of walls and fire-rated ceilings.

.4 Penetrations through fire-resistance rated floors, ceilings and roofs.

.5 Openings and sleeves installed for future use through fire separations.

.6 Around mechanical and electrical assemblies penetrating fire separations.

.7 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.

.8 Duct shafts: floor and ceiling of shaft.

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, including Section 07 52 00 - Modified Bituminous Membrane Roofing.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 61 00 - Common Product Requirements.

.5 Section 07 24 00 – Exterior Insulation and Finish Systems.

.6 Section 07 84 00 – Firestopping.

1.3 References

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

.1 ASTM C919-02, Standard Practice for Use of Sealants in Acoustical Applications.

.2 Canadian General Standards Board (CGSB)

.1 CGSB 19-GP-5M-1984, Sealing Compound, One Component, Acrylic Base, Solvent Curing (Issue of 1976 reaffirmed, incorporating Amendment No. 1).

.2 CAN/CGSB-19.13-M87, Sealing Compound, One-component, Elastomeric, Chemical Curing.

.3 CGSB 19-GP-14M-1984, Sealing Compound, One Component, Butyl-Polyisobutylene Polymer Base, Solvent Curing (Reaffirmation of April 1976).

.4 CAN/CGSB-19.17-M90, One-Component Acrylic Emulsion Base Sealing Compound.

.5 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.

.3 Department of Justice Canada (Jus).

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.4 General Services Administration (GSA) - Federal Specifications (FS)

.1 FS-SS-S-200-E(2)1993, Sealants, Joint, Two-Component, Jet-Blast-Resistant, Cold Applied, for Portland Cement Concrete Pavement.

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

.1 Material Safety Data Sheets (MSDS).

.6 Transport Canada (TC).

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.4 Submittals

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Manufacturer's product to describe.

.1 Caulking compound.

.2 Primers.

.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

.3 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

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

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

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

.1 Instructions to include installation instructions for each product used.

1.5 Quality Assurance/mock-up

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

.2 Construct mock-up to show location, size, shape and depth of joint s complete with back-up material, primer, caulking and sealant.

.3 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.4 Locate where directed .

.5 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with sealant work.

.6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. Approved mock-up may remain as part of finished Work if indicated by Contract Administrator.

1.6 Delivery, Storage, and Handling

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

.2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.7 Waste Management and Disposal

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

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

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Contract Administrator.

.8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.

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

1.8 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.

1.9 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.

Part 2 Products

2.1 Sealant Materials

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

.2 When low toxicity caulks are not possible, confine usage to areas which offgas to exterior, are contained behind air barriers, or are applied several months before occupancy to maximize offgas time.

.3 Where sealants are qualified with primers use only these primers.

2.2 Sealant Material Designations

.1 Polysulfide Two Part.

.1 Self-Leveling to CAN/CGSB-19.24, Type 1, Class B, colour as selected.

.2 Acceptable material: Sonneborn Polysulphide, or approved alternative.

.2 Polysulfide Two Part.

.1 Non-Sag to CAN/CGSB-19.24, Type 2, Class B, colour as selected.

.1 Acceptable material: Sonneborn Polysulphide, or approved alternative.

.3 Polysulfide One Part.

.1 Self-Leveling to CAN/CGSB-19.13, MC-1-40-B-N MC-1-25-B-N, colour.

.4 Polysulfide One Part.

.1 Non-Sag to CAN/CGSB-19.13, MC-2-40-B-NMC-2-25-B-N, colour as selected.

.5 Urethanes Two Part.

.1 Self-Leveling to CAN/CGSB-19.24, Type 1, Class B, colour as selected.

.2 Acceptable material: Sonolastic 2C SL/Sika 2C SL, or approved alternative.

.6 Urethanes Two Part.

.1 Non-Sag to CAN/CGSB-19.24, Type 2, Class B, colour as selected.

.2 Acceptable material: Sonolastic 2C NC/Sika 2C HS, or approved alternative.

.7 Urethanes One Part.

.1 Self-Leveling to CAN/CGSB-19.13, Type 1, colour as selected.

.8 Urethanes One Part.

.1 Non-Sag to CAN/CGSB-19.13, Type 2, MCG-2-25 MCG-2-40, colour as selected.

.2 Acceptable material: Sonolastic NP-1, S11A 1A, or approved alternative.

.9 Silicones One Part.

.1 To CAN/CGSB-19.13.

.1 Acceptable material: Dow Corning 999A, or approved alternative.

.2 To CAN/CGSB-19.22 (Mildew resistant).

.1 Acceptable material: Dow Corning 786, or approved alternative.

.10 Acrylics One Part.

.1 To CGSB 19-GP-5M.

.2 Acceptable material: Gap Seal, or approved alternative.

.11 Acrylic Latex One Part.

.1 To CAN/CGSB-19.17.

.2 Acceptable material: Dow Corning 999-A, or approved alternative.

.12 Acoustical Sealant.

.1 To CAN/CGSB-19.21.

.2 Acceptable material: P L Premium, or approved alternative.

.13 Butyl.

.1 To CGSB 19-GP-14M.

.2 Acceptable material: Gibsonhomes, or approved alternative.

.14 Structural Glass Adhesive Sealant.

.1 Acceptable material: Dow Corning 983, or approved alternative.

.15 Preformed Compressible and Non-Compressible back-up materials.

.1 Polyethylene, Urethane, Neoprene or Vinyl Foam.

.1 Extruded open closed cell foam backer rod.

.2 Size: oversize 30 to 50 %.

.2 Neoprene or Butyl Rubber.

.1 Round solid rod, Shore A hardness 70.

.3 High Density Foam.

.1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa,

extruded polyolefin foam, 32 kg/m3 density, or neoprene foam backer, size as recommended by manufacturer.

.4 Bond Breaker Tape.

.1 Polyethylene bond breaker tape that will not bond to sealant.

2.3 Sealant Selection

.1 Perimeters of exterior openings where frames meet exterior facade of building (ie. brick, block, precast masonry): Sealant type: Sonolastic NP-1, Sika 1A, or approved alternative.

.2 Expansion and control joints in exterior surfaces of poured-in-place concrete walls: Sealant type: Sonolastic NP-1, Sika 1A, or approved alternative.

.3 Expansion and control joints in exterior surfaces of precast, architectural wall panels: Sealant type: Dow Corning 795, or approved alternative.

.4 Control and expansion joints in exterior surfaces of unit masonry walls: Sealant type: Sonolastic NP-1, Sika 1A, Sonolastic 150, or approved alternative.

.5 Coping joints and coping-to facade joints: Sealant type: Dow Corning 795, Silglaze, clear, or approved alternative.

.6 Cornice and wash (or horizontal surface joints): Sealant type: Dow Corning 795, Vulkem 116, or approved alternative.

.7 Exterior joints in horizontal wearing surfaces: Sealant type: Sonolastic 2C 56, Sika 2C 5L, or approved alternative.

.8 Seal interior perimeters of exterior openings as detailed on drawings: Sealant type: Dow Corning 795, Vulkem 116, or approved alternative.

.9 Control and expansion joints on the interior of exterior poured-in place concrete walls: Sealant type: Sonolastic 2C 56, Sika 2C 5L, or approved alternative.

.10 Expansion and control joints on the interior of exterior precast, architectural wall panels: Sealant type: Dow Corning 795 Silicone, or approved alternative.

.11 Joints of underside of precast beams or planks: Sealant type: Sonolastic 2C HS, Sika -2C HS, or approved alternative.

.12 Control and expansion joints on the interior of exterior surfaces of unit masonry walls: Sealant type: Sonolastic NP-1, Sika -2C HS, or approved alternative.

.13 Interior control and expansion joints in floor surfaces: Sealant type: Sonolastic 2C SL, Sika-2C 56, or approved alternative.

.14 Perimeters of interior frames, as detailed and itemized: Sealant type: Sonolastic NP-1, Sika –1A, or approved alternative.

.15 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): Sealant type: Sonolastic 150, or approved alternative.

.16 Joints at tops of non-load bearing masonry walls at the underside of poured concrete: Sealant type: Sonolastic 2C NS, Sika -2C HS, or approved alternative.

.17 Perimeter of bath fixtures (e.g. sinks, tubs, urinals, stools, waterclosets, basins, vanities): Sealant type: Dow Corning 786 Silicone, or approved alternative.

.18 EIFS groove adhesive – Refer to Section 07 24 00 – Exterior Insulation and Finish Systems.

.19 Exposed interior control joints in drywall: Sealant type: Dow Corning Silicone #8644 Paintable, or approved alternative.

2.4 Joint Cleaner

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

.2 Primer: as recommended by manufacturer.

Part 3 Execution

3.1 Protection

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

3.2 Surface Preparation

.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

.2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter that 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