

PART 1 GENERAL

1.1 SECTION INCLUDES

- .1 Batt insulation.

1.2 RELATED SECTIONS

- .1 Section 06 10 53 - Rough Carpentry.

1.3 REFERENCES

- .1 CAN/ULC-S701-11, Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
- .2 CAN/ULC-S702-97, Thermal Insulation, Mineral Fibre, for Buildings.
- .3 ASTM C578 - Preformed, Cellular Polystyrene Thermal Insulation.
- .4 ASTM C612 - Mineral Fiber Block and Board Thermal Insulation Board.
- .5 ASTM C1289 - 12a Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
- .6 ASTM C591-94, Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
- .7 ASTM D1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- .8 ASTM C1013 - Membrane Faced Rigid Cellular Polyurethane Roof Insulation.
- .9 ASTM D2842 - Water Absorption of Rigid Cellular Plastics.
- .10 ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- .11 UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.4 ENVIRONMENTAL REQUIREMENTS

- .1 Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.1 INSULATION MATERIALS

- .1 Batt Insulation: ASTM C665; preformed glass fiber batt, roll, blanket; friction fit.
 - .1 Acceptable manufacturers: Fibreglass Pink as manufactured by Owens Corning.; Certainteed; Johns Manville.

2.2 ACCESSORIES

- .1 Metal Furring: Furring for walls shall be Insulok Thermo-stud furring channels; 0.18 inch thick, 9-90 galvanized finish, complete with Tapcon anchors to suit substrate or framing.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Verify that substrate, adjacent materials, and insulation boards are dry and ready to receive insulation and adhesive.
- .2 Verify substrate surface is flat, free of honeycomb, fins, irregularities, materials or substances that may impede installation.
- .3 Verify insulation boards are unbroken, free of damage, with face membrane undamaged.
- .4 Verify surfaces within walls being insulated have been inspected and approved.

3.2 BATT INSULATION

- .1 Install batt insulation locations as noted on drawings without gaps or voids.
- .2 Fit insulation tight in spaces and behind exterior side of mechanical and electrical services leaving no gaps or voids.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Sheet and sealant materials for controlling vapour diffusion.
- .2 Film vapour barriers.
- .3 Sheet air barriers.

1.2 RELATED SECTIONS

- .1 Section 06 10 53 - Rough Carpentry.
- .2 Section 07 92 00 – Joint Sealant.
- .3 Section 09 21 16 - Gypsum Board Assemblies: Functioning as a primary air seal.
- .4 Section 09 91 10 - Painting: Air sealing porous materials on inside surfaces of exterior wall.

1.3 REFERENCES

- .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.
- .2 ASTM C1193 - Standard Guide for Use of Joint Sealants.
- .3 ASTM E96 - Test Methods for Water Vapour Transmission of Materials.
- .4 SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.
- .5 ASTM E1186 - 03(2009) Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems.
- .6 ASTM D4541 - 09 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- .7 ASTM C920 - Elastomeric Joint Sealants.
- .8 ASTM E283 - Test Method For Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen..

1.4 DEFINITION

- .1 Vapour barrier: A material or assembly of materials that resists water vapour diffusion through it.

1.5 QUALITY ASSURANCE

- .1 Perform Work in accordance with SWRI - Sealant and Caulking Guide Specification requirements for materials and installation.
- .2 Maintain one copy each document on site.

1.6 PERFORMANCE REQUIREMENTS

- .1 Air Infiltration: Limit air infiltration through assembly to 0.1 l/s/sq m of wall area, measured at a reference differential pressure across assembly of 75 Pa as measured in accordance with ASTM E1186-98.
- .2 Pull – off: Air/vapour membrane shall be capable of withstanding a pull-out of 15 psi when measured in accordance with ASTM D4541-02 using a Comten industries series 201W or 302 w fixed alignment adhesion tester – type 1.

1.7 WARRANTY

- .1 Provide a three (3) year warranty.
- .2 Warranty: Include coverage of installed sealant and sheet materials which fail to achieve air tight seal, exhibit loss of adhesion or cohesion, or do not cure.

Part 2 Products

2.1 VAPOUR BARRIER

- .1 Film Type: CAN2-51.33M, Translucent polyethylene film, 0.06 inch thick for walls and ceiling, extra heavy duty for under slab of mechanical room and under sand in crawlspace.

2.2 AIR BARRIER

- .1 Air Barrier: spun bonded polyolefin or polypropylene
 - .1 Acceptable materials: Tyvek Building Wrap manufactured by Dupont Canada; Tytar Housewrap manufactured by Reemay Inc.; Styrofoam Weathermate Plus manufactured by Dow Canada.

2.3 SEALANTS

- .1 Sheet vapour Barrier: sealant to membrane manufacturer's recommendations.
- .2 Film vapour barrier: acoustic sealant specified in Section 07 92 00.

2.4 ACCESSORIES

- .1 Tape: permanent acrylic adhering back, polypropylene, 3M Contractors Sheathing Tape.
- .2 Vapour Barrier transition strip: sheet vapour barrier, width to provide minimum 6" lap to both roof and wall vapour barriers.
- .3 Sealants: Membrane manufacture

Part 3 Execution

3.1 PREPARATION

- .1 Remove loose or foreign matter which might impair adhesion.
- .2 Verify substrate surface is flat, free of honeycomb, fins, irregularities, materials or substances that may impede installation.
- .3 Clean and prime substrate surfaces to receive membrane and sealants in accordance with manufacturers' instructions.

3.2 VAPOUR BARRIER- FILM

- .1 Install preformed polyethylene vapour barrier box behind all electrical boxes in exterior wall. Staple and seal flanges to film vapour barrier.
- .2 Attach a 24 inch wide vertical strip of poly film on exterior wall at all locations where interior partitions will intersect.
- .3 Prior to installation of sheet polyethylene film, provide a continuous bead of sealant around perimeter of poly film at electrical outlets and at poly wrap at doors and windows.
- .4 Install polyethylene film using the largest sheets possible to minimize seams. Overlap seams minimum 12 inches and provide continuous bead of sealant between layers of film. Staple poly film seams through sealant at 24 inches o.c. Seal any perforations with polyethylene tape.
- .5 Provide continuous bead of sealant along top and bottom of walls and press poly film into sealant. Staple film edges at minimum 24 inches o.c.
- .6 Tape poly film around all protrusions from wall.

3.1 AIR BARRIER

- .1 Apply air barrier over exterior surfaces walls.
- .2 Lap minimum of 8" and seal with tape.
- .3 Fasten to framing or strapping at 24" on centre.
- .4 Seal to window and door frames. Seal to all penetrations in exterior walls.

3.2 EXTERIOR WALL INFILL

- .1 Rod and caulk both exterior and interior joints at air and vapour barrier locations.
- .2 Refer to Section 07 92 00.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- .1 Flashings for Aluminum Storefront, and exterior wall infill.

1.2 RELATED SECTIONS

- .1 Section 06 10 53 – Rough Carpentry:
- .2 Section 07 92 00 - Joint Sealants.
- .3 Section 08 11 00 – Metal Doors and Frames

1.3 REFERENCES

- .1 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 SMACNA - Architectural Sheet Metal Manual.

1.4 QUALITY ASSURANCE

- .1 Perform work in accordance with NRCA standard details and requirements.

1.5 QUALIFICATIONS

- .1 Fabricator and Installer: Company specializing in sheet metal flashing work with Five years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, protect and handle products to site.
- .2 Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- .3 Prevent contact with materials which may cause discolouration or staining.

1.7 EXISTING CONDITIONS / PROTECTION

- .1 Exercise care when working with or near existing surfaces to avoid damage.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

- .1 Pre-Coated Galvanized Steel: ASTM A653/A653M, G90 zinc coating; 24 gauge core steel, shop pre-coated with 8000 Series Defasco coating colour as selected by Contract Administrator.

2.2 ACCESSORIES

- .1 Fasteners: Same material and finish as flashing metal , with soft neoprene washers.

- .2 The primer types noted in the following paragraph are usually used with the metal type noted:
- .3 Primer Aluminum and Stainless Steel: Zinc chromate primer
- .4 Primer Galvanized Steel: Zinc chromate or galvanized iron primer
- .5 Protective Backing Paint: Bituminous.
- .6 Sealant: specified in Section 07 92 00.

2.3 FABRICATION

- .1 Form sections true to shape, accurate in size, square, and free from distortion or defects.
- .2 Fabricate cleats of sheet metal, same material as sheet.
- .3 Form pieces in longest possible lengths.
- .4 Hem exposed edges on underside 1/2 inch; miter and seam corners.
- .5 Form material with flat lock seams.
- .6 Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- .7 Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

2.4 FINISH

- .1 Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- .2 Apply plastic cement compound between metal flashings and felt flashings.
- .3 Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- .4 Install prefinished flashing to all locations indicated on drawings. Install Galvanised flashing to all non exposed locations as indicated on drawings.
- .5 Seal metal joints watertight.
- .6 Seal metal joints watertight.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Fireproof firestopping materials and accessories.

1.2 RELATED SECTIONS

- .1 Section 07 92 00 – Joint Sealants.
- .2 Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.3 REFERENCES

- .1 CAN /ULC-S115-1995, Fire Tests of Firestop Systems, Underwriter's Laboratories of Canada (ULC)
- .2 ULC - Fire Hazard Classifications.
- .3 WH (Warnock Hersey) - Certification Listings.

1.4 SYSTEM DESCRIPTION

- .1 Firestopping Materials: ULC to achieve a fire rating as noted on Drawings.
- .2 Firestop all interruptions to fire rated assemblies, materials, and components.
- .3 Fire stopping and smoke seal systems: in accordance with CAN4-S115.

1.5 QUALIFICATIONS

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

1.6 REGULATORY REQUIREMENTS

- .1 Conform to applicable code for fire resistance ratings and surface burning characteristics.
- .2 All fire stopping products to be ULC listed for each system and penetration type.
- .3 Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials
- .2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material for recycling in accordance with Construction Waste Management Plan.

- .3 Dispose of unused sealant materials at official hazardous material collections site approved by Contract Administrator.
- .4 Do not dispose of unused sealant materials into sewer system, into streams, lakes, onto ground or in other locations where it will pose health or environmental hazard.

1.8 ENVIRONMENTAL REQUIREMENTS

- .1 Apply materials within the temperature range as recommended by the manufacturer.
- .2 Maintain this temperature before, during, and for 3 days after installation of materials.

1.9 SEQUENCING

- .1 Sequence work to permit firestopping materials to be installed after adjacent and surround work is complete.

Part 2 Products

2.1 MATERIALS

- .1 Fire stopping and smoke seal systems: asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN4-S115 and not to exceed opening sizes for which they are intended in accordance with CAN4-S115.
- .2 Acceptable Manufactures:
 - .1 Tremco Inc.
 - .2 Bio Fireshield.
 - .3 Johns Manville.
 - .4 Hilti.
 - .5 A/D Fire Protection Systems Inc.

2.2 ACCESSORIES

- .1 Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.
- .2 Dam Material: mineral fibreboard, permanent.
- .3 Installation Accessories: Clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify openings are ready to receive the work of this section.

3.2 PREPARATION

- .1 Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.

- .2 Remove incompatible materials which may affect bond.
- .3 Install backing and damming materials to arrest liquid material leakage.

3.3 APPLICATION

- .1 Install material at walls or partition openings which contain penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
- .2 Install firestop materials in accordance with published ULC systems.
- .3 Apply primer and materials in accordance with manufacturer's instructions.
- .4 Apply firestopping material in sufficient thickness to achieve rating to uniform density and texture.
- .5 Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

3.4 CLEANING

- .1 Clean adjacent surfaces of firestopping materials.

3.5 PROTECTION OF FINISHED WORK

- .1 Protect adjacent surfaces from damage by material installation.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- .1 Preparing substrate surfaces.
- .2 Sealant and joint backing.

1.2 RELATED SECTIONS

- .1 Section 07 21 15 - Insulation.
- .2 Section 07 28 00 - Air and Vapour Barriers
- .3 Section 07 62 00-Sheet Metal Flashing and Trim: Sealants required in conjunction with metal flashings.
- .4 Section 09 21 16 - Gypsum Board Assemblies: Sealants required in conjunction with acoustic treatment.

1.3 REFERENCES

- .1 ASTM C919-11 - Standard Practice for Use of Sealants in Acoustical Applications.
- .2 ASTM C920-13 - Standard Specification for Elastomeric Joint Sealants.
- .3 ASTM C1311-10 - Standard Specification for Solvent Release Sealants.
- .4 ASTM C1330-02(2007) - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.

1.4 QUALITY ASSURANCE

- .1 Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

1.5 QUALIFICATIONS

- .1 Applicator: Company specializing in performing the work of this section with minimum Three years documented experience and approved by manufacturer.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials
- .2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material for recycling.

- .3 Dispose of unused sealant materials at official hazardous material collections site.
- .4 Do not dispose of unused sealant materials into sewer system, into streams, lakes, onto ground or in other locations where it will pose health or environmental hazard.

1.8 WARRANTY

- .1 Provide five year warranty.
- .2 Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal, water tight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 SEALANTS

- .1 Acrylic Sealant (Type A): ASTM C920, paintable; single component, solvent curing, non-staining, non-bleeding, non-sagging; Tremflex 834. Colour to be selected by Contract Administrator.
- .2 Acoustic Sealant (Type B): ASTM C1311, Acoustic grade, single component, solvent release, non-skinning, non-sagging, synthetic rubber, Tremco Acoustic Sealant Grey colour.
- .3 Polyurethane Sealant (Type C): ASTM C920, single component, chemical curing, non-staining, non-bleeding, Elongation Capability 25 percent, non-sagging ; Tremco Dymonic; PRC RC-1; Sonneborn NP-1; Vulkem 931. Colour as selected by Contract Administrator.
- .4 Silicone Sealant (Type D): ASTM C920, single component, fungus resistant, acidic curing, non-sagging, non-staining, non-bleeding; General Electric 'Sanitary 1700; Dow Corning 786. Colours as selected by Contract Administrator.

2.2 ACCESSORIES

- .1 Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- .2 Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- .3 Joint Backing: ASTM C1330; round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.
- .4 Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Verify that substrate surfaces and joint openings are ready to receive work.
- .2 Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

- .1 Remove loose materials and foreign matter which might impair adhesion of sealant.
- .2 Clean and prime joints in accordance with manufacturer's instructions.
- .3 Perform preparation in accordance with manufacturer's instructions.
- .4 Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

- .1 Install sealant in accordance with manufacturer's instructions.
- .2 Measure joint dimensions and size materials to achieve required 2:1 width/depth ratios.
- .3 Install bond breaker where joint backing is not used.
- .4 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- .5 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- .6 Tool joints concave.

3.4 CLEANING

- .1 Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

- .1 Protect finished installation.
- .2 Protect sealants until cured.

3.6 SCHEDULE

- .1 Apply sealant type 'A' to junctures of millwork items and adjacent building components and perimeter of door frames as directed by Consultant.
- .2 Apply sealant type 'B' in two continuous beads around perimeter of plates, at top, bottom and sides of all partitions.
- .3 Apply double bead sealant type 'B' around designated fire separations i.e. before setting top and bottom plates, where studs set around other materials, etc.
- .4 Apply sealant Type 'C' to exterior condition joints between door frames, window frames, siding components, etc. and where indicated on drawings.
- .5 Apply sealant Type 'D' to perimeter joints of all sanitary components, vanities, counters, sinks, water closets, shower heads, etc. unless noted otherwise on drawings.

END OF SECTION