

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 07 92 00 – Joint Sealants
- .2 Section 08 50 00 – Aluminum Windows

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit manufacturer's printed literature, specifications and datasheet and include:
 - .1 Product characteristics.
 - .2 Performance criteria.
 - .3 Limitations.
- .3 Submit two 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 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 where directed.
- .5 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with vapour barrier Work.
- .2 When accepted, mock-up will demonstrate minimum standard of quality required for this Work. Approved mock-up remain as part of finished Work..

Part 2 Products

2.1 SHEET VAPOUR BARRIER

- .1 Polyethylene film: to CAN/CGSB-51.34, 10 mil thickness.

2.2 ACCESSORIES

- .1 Joint sealing tape: air resistant pressure sensitive adhesive tape, cloth fabric duct tape type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.
- .2 Sealant: To Section 07 92 00 - Joint Sealants.
- .3 Staples: minimum 6 mm leg.

Part 3 Execution

3.1 INSTALLATION

- .1 Ensure services are installed and inspected prior to installation of retarder.
- .2 Install sheet vapour retarder to form continuous retarder.
- .3 Use sheets of largest practical size to minimize joints.
- .4 Inspect for continuity. Repair punctures and tears with sealing tape before Work is concealed.

3.2 EXTERIOR SURFACE OPENINGS

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

3.3 PERIMETER SEALS

- .1 Seal perimeter of sheet vapour barrier as follows:
 - .1 Apply continuous bead of sealant to substrate at perimeter of sheets.

- .2 Lap sheet over sealant and press into sealant bead.
- .3 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.
- .5 Tape lap joints.

3.4 LAP JOINT SEALS

- .1 Seal lap joints of sheet vapour barrier as follows:
 - .1 Attach first sheet to substrate.
 - .2 Apply continuous bead of sealant over solid backing at joint.
 - .3 Lap adjoining sheet minimum 150 mm and press into sealant bead.
 - .4 Install staples through lapped sheets at sealant bead into wood substrate.
 - .5 Ensure that no gaps exist in sealant bead. Smooth out folds and ripples occurring in sheet over sealant.
 - .6 Tape lap joints.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 07 26 00 – Sheet Vapour Retarders.
- .2 Section 07 92 00 – Joint Sealants.
- .3 Section 08 50 00 – Aluminum Windows.

1.2 REFERENCES

- .1 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/A606M-09a, 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-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .4 ASTM A792/A792M-10, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .5 ASTM B32-08, Standard Specification for Solder Metal.
 - .6 ASTM D523-08, Standard Test Method for Specular Gloss.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA A123.3-05(R2010), Asphalt Saturated Organic Roofing Felt.
 - .2 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature for sheet metal flashing systems materials, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop drawings:
 - .1 Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Manitoba of Canada.
- .4 Submit duplicate 2" x 2" (50 x 50 mm) samples of each type of sheet metal material, colour and finish.

- .5 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.
 - .1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.
 - .2 Manufacturer's Field Reports: submit to manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3, FIELD QUALITY CONTROL.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

Part 2 Products

2.1 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB 37.5.
- .3 Underlay for metal flashing: dry sheathing to CAN/CGSB-51.32, asphalt laminated 3.6 to 4.5 kg kraft paper, No. 15 perforated asphalt felt to CSA A123.3.
- .4 Sealants: to Section 07 92 00 – Joint Sealants.
- .5 Cleats: of same material, and temper as sheet metal, minimum 2" (50 mm) wide. Thickness 22 ga (0.762 mm) same as sheet metal being secured.
- .6 Fasteners: Screws: ANSI B18.6.4. Purpose made stainless steel with coloured caps and neoprene washers of length and thickness suitable for metal flashing application.

2.2 FABRICATION

- .1 Fabricate metal flashings and other sheet metal work in accordance with applicable CRCA 'FL' series details and as indicated.
- .2 Form pieces in 8' (2400 mm) maximum lengths. Make allowance for expansion at joints.
- .3 Hem exposed edges on underside ½" (12 mm). Mitre and seal corners with sealant.

- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.3 METAL FLASHINGS

- .1 Form flashings, J molding, copings and fascias to profiles indicated of 22 ga (0.762 mm) thick galvanized, pre-finished steel sheet.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION

- .1 Use concealed fastenings except where approved before installation.
- .2 Lock end joints and caulk with sealant.
- .3 Insert metal flashing into reglets, under cap flashing to form weather tight junction.
- .4 Turn top edge of flashing into recessed reglet or mortar joint minimum of 1" (25 mm). Lead wedge flashing securely into joint.
- .5 Caulk flashing at reglet, cap flashing with sealant.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 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.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Leave work areas clean, free from grease, finger marks and stains.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Applications of firestop systems include:
 - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
 - .2 Top of fire-resistance rated masonry and gypsum board partitions.
 - .3 Intersection of fire-resistance rated masonry and gypsum board partitions.
 - .4 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
 - .5 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
 - .6 Openings and sleeves installed for future use through fire separations.
 - .7 Around mechanical and electrical assemblies penetrating fire separations.
- .2 Work of this section is to be completed by one trade.

1.2 RELATED WORK

- .1 Fire stopping and smoke seals within mechanical assemblies and electrical assemblies are specified in mechanical and electrical sections respectively.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM E84-11c Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .2 ASTM 814-11a Test Method for Fire Tests of Through-Penetration Firestops.
 - .3 ASTM E1966-07(2011) Standard Test Methods for Fire Tests of Joints.
- .2 Underwriters Laboratories, Inc (UL):
 - .1 UL 1479 Fire Tests of Through-Penetration Firestops
 - .2 UL 2079 Tests for Fire Resistance of Building joint Systems.
 - .3 UL Fire Resistance Directory:
 - .1 Fills, Voids or Cavity Materials (XHHW)
 - .2 Firestop Devices (XHJI)
- .3 Underwriter's Laboratories of Canada (ULC)
 - .1 ULC-S115-2005, Fire Tests of Firestop Systems.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit 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, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 Submit duplicate 300 x 300 mm samples showing actual firestop material proposed for project.
- .4 Shop Drawings:
 - .1 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.
- .5 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job Site. Include manufacturer's printed instructions for installation.
- .6 Written documentation of applicator's qualifications, including reference projects of similar scope and complexity, with current phone contacts of Contract Administrator and City of Winnipeg for verification.
- .7 Certification from sealant manufacturers that their products are suitable for the use indicated and comply with specification requirements.

1.5 QUALITY ASSURANCE

- .1 Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the Work of this Section.
- .2 Applicator Qualifications
 - .1 Applicator shall have at least 5 years experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity.
 - .2 Applicator shall designate a single individual as project foreman who shall be on Site at all times during installation.
- .3 Single source responsibility for firestopping materials:
 - .1 Obtain firestop materials from single manufacturer for each different product required.
 - .2 Manufacturer shall instruct applicator in procedures for each material.

- .4 Regulatory Requirements:
 - .1 Firestop System installation must meet requirements of ASTM E-814, UL 1479 or UL 2079 testes assemblies that provide a fire rating equal to that of construction being penetrated.
 - .2 Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.
 - .3 For those firestop applications that exist for which no UL tested system is available through any manufacturer, a manufacturer's engineering judgement derived from similar independently tested system designs will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Manufacturer's Engineer judgement drawings must follow requirements as set forth by the International Firestop Council.
 - .4 VOC requirements as set forth by CARB for sealants as follows:
 - .1 4% or less by weight in containers less than 16 oz.
 - .2 250 g/L or less for containers greater than 16 oz.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 Deliver the materials to the job Site in the manufacturer's unopened containers, containing the UL classification label, with all labels intact and legible at time of use.
- .3 Store materials in accordance with manufacturer's recommendation with proper precautions to ensure fitness of material when installed.
- .4 Before handling, read product data sheets and materials safety data sheets. Do not use damaged or expired materials. Replace defective or damaged material with new.
- .5 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

1.7 WARRANTY

- .1 Deliver to the Contract Administrator signed copies of the following written warranties against material failure:
 - .1 Manufacturer's standard warranty covering firestop materials.
 - .2 Applicator's standard warranty covering workmanship.

Part 2 Products

2.1 SUSTAINABLE REQUIREMENTS

- .1 Provide documentation as defined in 1.4.of this section.
- .2 All materials must meet the pertinent VOC levels as defined below:
 - .1 Membranes, coatings and their associated primers must be below 100g/L unless supplied in < 1 gallon containers.
 - .2 Sealants must be below 4% by weight if supplied in less than 16 oz. package size or below 250g/L if supplied in greater than 16 oz size.
 - .3 All non-porous sealant primers must be below 250g/L and primers for porous substrates less than 775g/L.

2.2 GENERAL

- .1 Acceptable Manufacturer: Tremco, Inc. (800) 852-8173
- .2 Acceptable Products / System(s): Tremco Firestop Systems Products as identified below or acceptable alternate.
 - .1 TREMstop IA+
 - .2 TREMstop Fyre-Caulk
 - .3 TREMstop Acrylic/Acrylic - SP
 - .4 TREMstop D
 - .5 TREMstop CIPP-P/M
 - .6 Dymeric 240
- .3 Product / System Testing: UL Fire Resistance Directory, Fill, Void or Cavity Materials (XHHW) and Firestop Devices (XHJI) for listed product(s)/system(s).

2.3 MATERIALS

- .1 Fire stopping and smoke seal systems: in accordance with ULC-S115.
- .2 Service penetration assemblies: systems tested to CAN-ULC-S115.
- .3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.
- .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.
- .11 TREMstop IA+ High Performance Intumescent Acrylic Sealant
- .12 TREMstop Fyre-Caulk High Performance Intumescent Acrylic Sealant
- .13 TREMstop Acrylic Flexible Acrylic Sealant
- .14 TREMstop Acrylic - SP Sprayable, Flexible Acrylic Sealant
- .15 TREMstop D Prefabricated Firestopping Collar Device
- .16 TREMstop CIPP-P/M Cast-In-Place Pass Thru for Plastic or Metal Pipe
- .17 Dymeric 240 Multi-Component Polyurethane Sealant.

2.4 OTHER MATERIALS

- .1 Provide other materials, not specifically described but required for a complete and proper installation as selected by the Contractor and approved by the sealant manufacturer as compatible, subject to review by the Contract Administrator.

2.5 SOURCE QUALITY

- .1 Source Quality: Obtain firestop system products from a single manufacturer.
- .2 Manufacturer's Field Services: Upon City of Winnipeg request, provide manufacturer's field service consisting of product use recommendations and site visits for inspection of installation per manufacturer's instructions.

Part 3 Execution

3.1 SOURCE QUALITY

- .1 Manufacturer's Instructions:
 - .1 Compliance: Comply with manufacturer's product data including project technical bulletins, product catalog installation instructions and product packaging instructions.

3.2 EXAMINATION

- .1 Site Verifications of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instruction.
 - .1 Examine areas and conditions under which Work is to be performed and identify conditions detrimental to proper and timely completion.

3.3 PREPARATION

- .1 Surface Preparation: Prepare surface to receive firestop system products in accordance with manufacturer's instruction for surface preparation.
 - .1 Verify that penetrations and joints are properly sized.
 - .2 Secure pipe, conduit, cable and other items which penetrate firestop materials.
 - .3 Comply with manufacturer's instructions relative to temperature and humidity conditions, before, during and after installation of firestopping materials.
 - .4 Do not proceed until unsatisfactory conditions have been corrected.

3.4 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.

3.5 INSTALLATION

- .1 Regulatory Requirements: install firestop materials in accordance with published Through-Penetration Firestop Systems in UL's Fire Resistance Directory or the publication of another approved independant laboratory.

- .2 Manufacturer's Instructions: Comply with manufacturer's instructions for installation of firestopping materials.
 - .1 Seal all holes or voids made by penetrations to ensure an air and water resistant seal.
 - .2 Seal all joints to ensure an air and water resistant seal, capable to withstand compression and extension due to thermal, wind or seismic joint movement.
 - .3 Consult with Contract Administrator prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.

3.6 FIELD QUALITY REQUIREMENTS

- .1 Examine sealed penetration and joint areas to ensure proper installation before concealing or enclosing areas.
- .2 Keep areas of Work accessible until inspection by applicable code authorities.
- .3 Perform under this section patching and repairing of firestopping caused by cutting or penetration of existing firestop systems already installed by other trades.

3.7 IDENTIFICATION

- .1 Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
 - .1 The words: "Warning: Through-Penetration Firestop System - Do Not Disturb"
 - .2 Contractors name, address and phone number
 - .3 Designation of applicable testing and inspection agency
 - .4 Date of installation
 - .5 Manufacturer's name for firestop materials
- .6 Around mechanical and electrical assemblies penetrating fire separations.
- .7 Rigid ducts: greater than 129 cm²: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

3.8 PROTECTION

- .1 Protection: Protect installed Product from damage during construction.

3.9 CLEAN UP

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 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.

1.2 RELATED SECTIONS

- .1 Section 06 10 00 – Rough Carpentry
- .2 Section 06 40 00 – Architectural Woodwork
- .3 Section 07 26 00 – Sheet Vapour Retarders
- .4 Section 07 62 00 – Sheet Metal flashing and Trim
- .5 Section 08 11 00 – Metal Doors and Frames
- .6 Section 08 11 30 – Stainless Steel Doors and Frames
- .7 Section 08 50 00 – Aluminum Windows
- .8 Section 08 80 50 – Glazing
- .9 Section 09 21 16 – Gypsum Board Assemblies
- .10 Section 09 30 13 – Ceramic Tile

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 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.

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 requirements of Contract Administrator.
- .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.
- .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.

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 Exterior general use (non-traffic bearing): Silicone One Part. to CAN/CGSB-19.13.
 - .1 Acceptable Products:
 - .1 Dow 790/795
 - .2 GE Silpruf./silfruf LM/silpruf NB
 - .3 Sonneborne sonolastic 150/ sololastic omiseal
 - .2 Millwork to wall joints and wet areas except floors: Silicone One Part. to CAN/CGSB-19.22.
 - .1 Acceptable Products:
 - .1 Dow 786
 - .2 GE 1700
- .3 Urethanes One Part.
 - .1 Self-Leveling to CAN/CGSB-19.13, Type 1

- .1 Acceptable Products
 - .1 Sonneborne SL1
 - .2 Tremco THC 900
 - .3 PRC 6000/6006
 - .4 Vulkem 116/45
 - .5 Bostik Chem-Calk 900
 - .6 Sika Sikaflex 1a
- .4 Acrylic Latex One Part.
 - .1 To CAN/CGSB-19.17.
 - .2 Acceptable material:
 - .1 Sonnoborn Sonolac
 - .2 Tremco 834
 - .3 PRC 2000
 - .4 Sternson Acry Flex
 - .5 GE Acryseal
- .5 Sealants for vertical and horizontal non-traffic bearing joints to CGSB 19-GP-24.
 - .1 Type 1: high, low temperature range, wet conditions, movement range to 25%
polysulphide, non-staining, non-fading. Caulking to withstand environmental conditions of locale.
 - .2 Type 2: normal temperature range, dry conditions, movement range to 10%. Paintable, latex base caulking, interior conditions only.
 - .3 Three part epoxidized polyurethane sealant: to meet the specified requirements of CGSB-19.24-M90.
- .6 Acoustical Sealant.
 - .1 To ASTM C919.
 - .2 Acceptable material:
 - .1 Tremco acoustic sealant
 - .2 PI 2000 bulldog
- .7 Preformed Compressible and Non-Compressible back-up materials.
 - .1 Polyethylene, Urethane, Neoprene or Vinyl Foam.
 - .1 Extruded closed cell foam backer rod.
 - .2 Size: oversize 30 to 50 %.
 - .2 Neoprene or Butyl Rubber.
 - .3 Round solid rod, Shore A hardness 70.
 - .3 High Density Foam.
 - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.

- .4 Bond Breaker Tape.
 - .1 Polyethylene bond breaker tape which will not bond to sealant.
- .5 Sealant for fireproofing: where cables, conduits, pipes and ducts pass through floors and fire-rated walls, pack space between wiring and sleeve full with penetrating foam sealing system, ULC listed meeting CAN4-S115-M85 and ASTM E814 fire barrier requirements.
- .6 Colours: Colours shall be selected from manufacturer's standard colour range. Colours to match material / background colour upon which they occur. Final colour selection by Contract Administrator.

2.3 SEALANT SELECTION

- .1 Multi component, polyurethane base, non sag for exterior window locations such as control joints, curtain walls, perimeter seal around windows, doors and other exterior locations where applicable.
- .2 One component acrylic base, non sag for exterior window locations such as control joints, curtain walls perimeter seal around windows, doors and other exterior locations where mildew resistant sealants are required.
- .3 One component Silicone, Mildew Resistant for interior locations at joints between plumbing fixtures and walls or floors .
- .4 Latex acrylic sealant for interior joints in surfaces to be painted such as around window frames, at millwork to wall locations.
- .5 Acoustic Sealant for areas where acoustical integrity is required.
- .6 Exterior Silicone Sealant to CAN/CGSB 19.13-M87 Type MCG Class 2-40 for horizontal and vertical non traffic joints.
- .7 Exterior Multi component urethane sealant to CAN/CGSB 19.24-M90 Type 2 Class A self leveling.
- .8 Control and expansion joints on the interior of exterior surfaces of unit masonry walls: Sealant type: A.
- .9 Interior control and expansion joints in floor surfaces: Sealant type: A.
- .10 Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls): Sealant type: A.

2.4 JOINT CLEANER

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

Part 3 Execution

3.1 PROTECTION

- .1 Protect installed Work of other trades from staining or contamination.

3.2 SURFACE PREPARATION

- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
- .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.
- .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .4 Ensure joint surfaces are dry and frost free.
- .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