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**Partie 1      General**

**1.1      RELATED REQUIREMENTS**

- .1      Section 03 30 00      Cast-in-place Concrete.
- .2      Section 6 10 00      Rough Carpentry.
- .3      Section 07 21 13      Board Insulation.
- .4      Section 07 21 16      Blanket Insulation.
- .5      Section 07 21 23      Loose Fill Insulation.
- .6      Section 07 92 00      Joint Sealants.
- .7      Section 08 11 00      Metal Doors and Frames.
- .8      Section 08 11 16      Aluminum Doors and Frames.
- .9      Section 08 44 13      Glazed Aluminum Curtain Walls.
- .10     Section 08 50 00      Windows.
- .11     Section 08 90 00      Louvres and Vents.
- .12     Section 09 21 16      Gypsum Board Assemblies.

**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.

**1.3      ACTION AND INFORMATIONAL 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:
    - .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 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 on-site installations in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart:
  - .1 Verify project requirements.
  - .2 Review installation and substrate conditions.
  - .3 Co-ordinate with other building subtrades.
  - .4 Review manufacturer's installation instructions and warranty requirements.
- .4 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .5 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 indicated.
  - .5 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with vapour barrier 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. Remove mock-up and dispose of materials when no longer required and when directed by Departmental Representative.

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

- .3 Collect and separate for paper, plastic, polystyrene and cardboard packaging material in appropriate on-site containers for recycling in accordance with Waste Management Plan.

## **1.6 ACCEPTABLE PRODUCTS AND MATERIALS**

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

## **Partie 2 Products**

### **2.1 SHEET VAPOUR BARRIER**

- .1 Polyethylene film: to CAN/CGSB-51.34, 0.10 mm thick, for application to insulated ceilings, as indicated on plans.
- .2 Underslab vapour barrier: Plastic vapour retarder.
  - .1 Performance based specification: Retarder membrane must be composed of virgin polyolefine resins and when tested according to requirements of ASTM E 1745 meet the following minimum requirements:
    - .2 Maximum water vapour permeance (ASTM E 154, Sections 7, 8, 11, 12,13), following ASTM E 96, Method B or ASTM F 1249).
    - .3 As received: 0.0093 perm.
    - .4 After wetting and drying: 0.0122 perm.
    - .5 Resistance to plastic flow and temperature: 0.0121 perm.
    - .6 Effect low temperature and flexibility: 0.0138 perm.
    - .7 Resistance to deterioration from organisms and substances in contacting soil: 0.0123 perm.
    - .8 Puncture resistance (ASTM D 1709): 4394 g.
    - .9 Tensile strength (ASTM E 154, Section 9): 84 lb/po.
    - .10 Thickness: 0.38 mm (15 mils).
    - .11 Acceptable product: Perminator by W.R. Meadows.
    - .12 Replacement materials or products: approved by addendum in compliance with Instructions to Bidders.
  - .3 Self-adhesive waterproofing roof membrane, glass mat reinforced SBS modified bitumen.
    - .1 Underface: Silicon release film.
    - .2 Surface: Granules.
    - .3 Tensile strength MD/XD (ASTM D1970): 16/14%.
    - .4 Ultimate elongation MD/XD (ASTM D1970): 400/353N.
    - .5 Cold bending (ASTM D5147): -50°C.
    - .6 Static puncture resistance (ASTM D5602): 400N.
    - .7 Tear resistance MD/XD (ASTM D1970): 140 N.

- .8 Water vapour permeance ASTM E96 (Procedure B): 0.02 perm.

## **2.2 ACCESSORIES**

- .1 Joint sealing tape: pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, (under slab), 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere. Compatible with polyolefin virgin resins for use with under-slab vapour barriers.
- .2 Joint sealing tape: air resistant pressure sensitive adhesive tape, type recommended by vapour barrier manufacturer, 50 mm wide for lap joints and perimeter seals, 25 mm wide elsewhere.
- .3 Sealant: compatible with vapour retarder materials, recommended by vapour retarder manufacturer. To Section 07 92 00 - Joint Sealants.
- .4 Staples: minimum 6 mm leg.
- .5 Moulded box vapour barrier: factory-moulded polyethylene box for use with recessed electric switch and outlet device boxes.
- .6 Primer for self-adhesive vapour barrier: stabilized bituminous emulsion (water based) designed to enhance adhesion of self-adhesive vapour barrier.
  - .1 Weight at 20°C (68°F) – 1.00/L.
  - .2 Solids: -44%.

## **Partie 3 Execution**

### **3.1 INSTALLATION**

- .1 Ceiling vapour barrier application:
  - .1 Ensure services are installed and inspected prior to installation of retarder.
  - .2 Install sheet vapour retarder on warm side of exterior ceiling prior to installation of gypsum board 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.
- .2 Underslab vapour retarder application:
  - .1 Install in accordance with manufacturer's instructions and ASTM E 1643–98.
  - .2 Unroll vapour retarder with the longest dimension parallel with the direction of the pour.
  - .3 Lap vapour retarder over footings and seal to foundation walls.
  - .4 Overlap joints 6 inches and seal with manufacturer's tape.
  - .5 Seal all protections (including pipes) with manufacturer's pipe boot.
  - .6 No penetration of vapour retarder is allowed except for reinforcing steel and permanent utilities.

- .7 Repair damaged areas by cutting patches of vapour barrier, overlapping damaged area 6 inches and taping off all four sides with tape.
- .3 Self-adhering vapour barrier application:
  - .1 Clean and dry substrate.
  - .2 Brush or roll on primer.
  - .3 Allow primer to dry. Surface must be covered the same day.
  - .4 Unroll, place and cut membrane.
  - .5 Start by peeling back silicon sheet 150 mm.
  - .6 Adhere membrane to substrate while continuing to unroll silicon sheet.
  - .7 After entire membrane is glued, apply pressure over surface using rubber roller. Remove air pockets.
  - .8 Overlap sheets to ensure continuous barrier over width prescribed by manufacturer.

### **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.

### **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.

### **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.

**END OF SECTION**