

**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 – Shop Drawings, Product Data and Samples.
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 01 51 00 - Temporary Facilities.
- .4 Section 01 61 00 - Product Requirements.

**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 – Shop Drawings, Product Data and Samples.
- .2 Submit WHMIS MSDS - Material Safety Data Sheets.
- .3 Submit product data sheets for bituminous dampproofing products. Including:
  - .1 Product characteristics.
  - .2 Performance criteria.
  - .3 Application methods.
  - .4 Limitations.
- .4 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence and cleaning procedures.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - 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 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 Waste Management Plan.
- .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, sealing compounds and asphalt primer materials from landfill to recycling facility approved by Engineer.

**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.
- .2 Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of asphalt, sealing compounds, primers and caulking materials.

## **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 or CSA A123.4 Type [1] [2] [3].
    - .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 or CSA A123.4 Type [1] [2] [3] ].
    - .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 or 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 or 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 tops of foundation wall footings.
- .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 REQUIREMENTS**

- .1 Section 01 33 00 - Shop Drawings, Product Data and Samples

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM C591-01, Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
  - .2 ASTM C612-04, Standard Specification for Mineral Fibre Block and Board Thermal Insulation.
  - .3 ASTM E96/E96M-05, Standard Test Methods for Water Vapour Transmission of Materials.
- .2 Canadian General Standards Board (CGSB)
  - .1 CGSB 71-GP-24M-77(R1983), Adhesive, Flexible, for Bonding Cellular polystyrene Insulation.
- .3 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Coverings.
  - .2 CAN/ULC-S702-97, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
  - .3 CAN/ULC-S704-03, Standard for Thermal Insulation Polyurethane and Polyisocyanurate, Boards, Faced.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Shop Drawings, Product Data and Samples.
  - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Shop Drawings, Product Data and Samples. 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 Convene pre-installation meeting one week prior to beginning work of this Section 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 33 - Health and Safety Requirements.

## **1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse in accordance with Section 01 74 19 - Waste Management and Disposal.
- .2 Collect and separate for disposal corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

## **Part 2 Product**

### **2.2 BELOW GRADE INSULATION**

- .1 Extruded polystyrene (XPS): to CAN/ULC-S701, with maximum water absorption of 0.7% in accordance with ASTM D2824, minimum 5 year aged R-value R5.0 per 1" (RSI = 0.88)
  - .1 Type: 4.
  - .2 Thickness: Refer to Building Requirements – Section 3.9 Thermal Protection.
  - .3 Edges: square.

### **2.3 FOUNDATION WALL INSULATION**

- .1 Cement-faced Rigid Cellular Polystyrene: to CAN/ULC-S701;
  - .1 Type: 4
  - .2 Compressive strength: minimum 241 kPa to ASTM 1621.
  - .3 Facer: 8 mm thick latex-modified concrete.
    - .1 Finish: slightly broom finish.
  - .4 Edges: tongue and groove.
  - .5 Size: 610 mm x 1219 mm.
  - .6 Thickness: Refer to Building Requirements – Section 3.9 Thermal Protection.

### **2.4 EXTERIOR WALL INSULATION**

- .1 Extruded polystyrene (XPS): to CAN/ULC-S701, with maximum water absorption of 0.7% in accordance with ASTM D2824, minimum 5 year aged R-value R5.0 per 1" (RSI = 0.88);
  - .1 Type: 2
  - .2 Thickness: Refer to Building Requirements – Section 3.9 Thermal Protection.
  - .3 Edges: square.

## **2.5 ADHESIVE FOR POLYSTYRENE**

- .1 Adhesive (for polystyrene): to CGSB 71-GP-24.
  - .1 Type: as recommended by manufacturer for application on this project.
  - .2 VOC emission: zero.

## **2.6 ACCESSORIES**

- .1 Insulation at Foundation Walls: Galvanized Steel to ASTM A123/A123M-08 - Zinc-Coated (Galvanized), Z275 to G90 coating designation, preformed as supplied by manufacturer, complete with corrosion proof masonry fasteners.

## **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 CAN/CGA-B149.1 and CAN/CGA-B149.2 type B 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 Departmental Representative.

### **3.3 EXAMINATION**

- .1 Examine substrates and immediately inform Departmental Representative in writing of defects.
- .2 Prior to commencement of work ensure:
  - .1 Substrates are firm, straight, smooth, dry, free of snow, ice or frost, and clean of dust and debris.

**3.4 RIGID INSULATION INSTALLATION**

- .1 Apply Type adhesive to polystyrene by notched trowel in accordance with manufacturer's recommendations.
- .2 Imbed insulation boards into vapour barrier type adhesive, applied as specified, prior to skinning of adhesive.
- .3 In addition to adhesive, install mineral fibre insulation boards with insulation clips and disk, 2 per 600 x 1200 mm board minimum, fit boards tight, cut off fastener spindle 3 mm beyond disk.
- .4 Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 150 mm wide 0.15 mm modified bituminous membrane over expansion and control joints using compatible adhesive and primer before application of insulation.

**3.5 PERIMETER FOUNDATION INSULATION**

- .1 Exterior application: extend boards as indicated. Install on exterior face of perimeter foundation wall as per manufacturer's recommendations.
- .2 Under slab application: extend boards as indicated. Lay boards on level compacted fill.

**3.6 CLEANING**

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

**END OF SECTION**