

## **PART 1 GENERAL**

### **1.1 REFERENCES**

- .1 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)
- .2 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S101-07, Fire Endurance Tests of Building Construction and Materials.
  - .2 CAN/ULC-S102-10, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
  - .3 CAN/ULC-S705.1-15, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Material Specification.
  - .4 CAN/ULC-S705.2-05, Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density, Application.

### **1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit 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.
  - .2 Submit two copies WHMIS MSDS - Material Safety Data Sheets.

### **1.3 QUALITY ASSURANCE**

- .1 Applicators to conform to CUFCA Quality Assurance Program.
- .2 Qualifications:
  - .1 Installer: person specializing in sprayed insulation installations with 5 years experience approved by manufacturer.
  - .2 Manufacturer: company with minimum 5 years experience in producing of material used for work required for this project, with sufficient production capacity to produce and deliver required units without causing delay in work.
- .3 Health and Safety Requirements: worker protection:
  - .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
  - .2 Workers must wear gloves, respirators, dust masks, eye protection, protective clothing when applying foam insulation.
  - .3 Workers must not eat, drink or smoke while applying foam insulation.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect specified materials from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new..

## **1.5 SITE CONDITIONS**

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

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Insulation: spray polyurethane foam to CAN/ULC-S705.1, thickness and RSI Value as indicated on drawings.
  - .1 Initial thermal resistance: minimum RSI 2.5 per 50 mm.
  - .2 Long term thermal resistance: minimum RSI 2.0 per 50 mm.
  - .3 Density: 28 kn/m<sup>3</sup>, to ASTM D1622.
  - .4 Air barrier properties: to ASTM E2178.
    - .1 @75 Pa: maximum 0.05 L/s.
  - .5 Water Vapour Permeance, to ASTM E96:
    - .1 50 mm thick: maximum 60 ng/ (Pa.s.m<sup>2</sup>).
  - .6 Tensile Strength: minimum 200 kPa, to ASTM D1621.
  - .7 Flame Spread: to CAN/ULC-S102, in accordance with the latest edition of the National Building Code.
  - .8 Water Absorption by volume: maximum 4%, to ASTM D2842.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sprayed insulation application accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Departmental Representative.

### **3.2 APPLICATION**

- .1 Apply insulation to clean surfaces in accordance with CAN/ULC-S705.2 and manufacturer's printed instructions.
- .2 Use primer where recommended by manufacturer.
- .3 Apply sprayed foam insulation in thickness as indicated to seal all openings in exterior wall envelope to produce a continuous air/vapour barrier.

### **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 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .1 Remove insulation material spilled during installation and leave work area ready for application of wall board.

**END OF SECTION**