

PART 1 **GENERAL****1.1** **RELATED SECTIONS**

- .1 Appendix 4 –Vapour Retarders

1.2 **REFERENCES**

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D1621, Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 - .2 ASTM D1622, Standard Test Method for Apparent Density of Rigid Cellular Plastics.
 - .3 ASTM D1623, Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
 - .4 ASTM D2842, Standard Test Method for Water Absorption of Rigid Cellular Plastics.
 - .5 ASTM E96, Standard Test Methods for Water Vapour Transmission of Materials.
 - .6 ASTM E2178, Standard Test Method for Air Permeance of Building Materials.
- .2 Canadian Urethane Foam Contractors' Association Inc. (CUFCA)
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101, Fire Endurance Tests of Building Construction and Materials.
 - .2 CAN/ULC-S102, Surface Burning Characteristics of Building Materials and Assemblies.
 - .3 CAN/ULC-S705.1, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Material Specification.
 - .4 CAN/ULC-S705.2, Standard for Thermal Insulation Spray Applied Rigid Foam, Medium Density, Installer's Responsibilities-Specification.

1.3 **QUALITY ASSURANCE**

- .1 Installer to conform to CUFCA Quality Assurance Program or an equivalent recognized quality assurance and training program.
- .2 Qualifications:
 - .1 Installer: person specializing in sprayed insulation installations with minimum 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.

1.4 SAFETY REQUIREMENTS

- .1 Protect workers as recommended by CAN/ULC-S705.2 and manufacturer's recommendations:
 - .1 Workers must wear gloves, respirators, dust masks, eye protection, protective clothing when applying foam insulation.
 - .2 Workers must not eat, drink or smoke while applying foam insulation.

1.5 PROTECTION

- .1 Ventilate area to receive insulation by introducing fresh air and exhausting air continuously during and 24 hours after application to maintain non-toxic, unpolluted, safe working conditions.
- .2 Provide temporary enclosures to prevent spray and noxious vapours from contaminating air beyond application area.
- .3 Protect adjacent surfaces and equipment from damage by overspray, fall-out, and dusting of insulation materials.
- .4 Dispose of waste foam daily in location designated by Owner's Representative and decontaminate empty drums in accordance with foam manufacturer's instructions.

1.6 ENVIRONMENTAL REQUIREMENTS

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

1.7 WARRANTY

- .1 Provide a written guarantee, signed and issued in the name of the owner, stating the sprayed polyurethane foam insulation shall remain free from defects in materials and workmanship for a period of one (1) year from the date of Substantial Completion.

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 kg/m³, 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.m²).

- .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.
- .2 Primers: in accordance with manufacturer's recommendations for surface conditions.

PART 3 **EXECUTION**

3.1 **MANUFACTURER'S INSTRUCTIONS**

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

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 **CLEANING**

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION