

Spray Foam Requirements for Part 9 Buildings

Spray Foam must meet the requirements of 9.25.2.2.(g) CAN/ULC-S705.1-01 “Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density - Specification”.

The application of the spray foam must meet the requirements of CAN/ULC-S705.2-05 “Thermal Insulation – Spray Applied Rigid Polyurethane Foam, Medium Density – Application”.

The manufacturer / supplier shall declare the Certification Organization that they have chosen that is responsible for delivering the quality assurance program based on ISO 9002 for their product. The manufacturer / supplier shall ensure that the material is installed by a Licensed Contractor using a Licensed Installer in accordance to CAN/ULC-S705.2-05 and the instruction given by the chemical manufacturer. The Licensed Contractor shall ensure that the Licensed Installer follows the quality assurance program developed by the Certification Organization. The Licensed Installer shall provide a current photo ID of certification upon request by the Authority Having Jurisdiction.

Thermal Insulation

Spray foam must be installed to a thickness to provide the Thermal Insulation Requirements of Table 9.25.2.1.

- 1) Wall Assemblies (except basements) – R12
- 2) Basement and crawlspaces – R8
- 3) Floor Assemblies Perimeter – R12
- 4) Floor Assemblies (exposed Cantilevers Bonus room floor) – R20
- 5) Roof or Ceiling Assemblies – R34

Air and Vapour Barriers

9.25.3.1. (1) Thermally insulated wall, ceiling and floor assemblies shall be constructed so as to include an air barrier system that will provide a continuous barrier to air leakage.

9.25.4.3. (1) Vapour Barrier shall be installed to protect the entire surfaces of thermally insulated wall, ceiling and floor assemblies.

Engineered rim boards including TJI iLevel™ Rim Board, LP OSB Rim Board and Emercor Insulated Rim Board must be protected by a vapor barrier with a permeance rating of 15ng/(Pa*s*m²) (CCMC evaluations 13264-R, 13204-R and 13254-R) to address the requirements of Articles 9.25.1.2 and 9.25.4.2. of the 2006 ABC.

An approved Vapour Barrier and Air Barrier are required when spray foam is installed in a wall cavity. This also applies to joist end assemblies where the spray foam is not continuous along the assembly and is interrupted by framing members.

When spray foam is installed in a continuous layer as the sole insulation material of the wall assembly, a vapour barrier is not required when the applied thickness provides a Water Vapour Permeance less than $60\text{ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$. An air barrier is not required when the applied thickness provides an air permeance less than $0.1\text{L}/(\text{s}\cdot\text{m}^2)$.

When spray foam is installed as the air/vapour barrier, no additional fibrous insulation is allowed within the assembly on the warm side of the foam. The installation of additional insulation will move the dew point to a colder portion of the assembly which will result in condensation of water vapour within the assembly.

When spray foam is installed as an air barrier, additional sealants and gaskets may be required as per the foam manufactures approve air barrier system. Complete details must be provided by applicant for review by a Safety Codes Officer prior to construction.

Protection of Foamed Plastics

Unless concealed in a floor, ceiling, attic or crawl spaces, all foamed plastics used in residential buildings must be protected by one of the following items:

- 1) by one of the interior finishes described in Subsections 9.29.4 to 9.29.9 including:
 - a) 9.29.4 - Plastering
 - b) 9.29.5 - Gypsum Board Finish (Taped Joints)
 - c) 9.29.6 – Plywood Finish
 - d) 9.29.7 – Hardboard Finish
 - e) 9.29.8 – Insulating Fibreboard Finish
 - f) 9.29.9 – Particleboard, OSB or Waferboard Finish

- 2) any thermal barrier that meets the requirements of Sentence 3.1.5.12. (2)(e)
 - i) Note - certain materials may also require protection for flamespread. Drywall is the recommended cladding to be used to provide the protection over all types of foam plastics.

3.1.5.12. (2)(e) - any thermal barrier that meets the requirements of classification B when tested in conformance with CAN4-S124-M, Standard Method of Test for the Evaluation of Protective Coverings for Foamed Plastic (See Appendix A).

*A thermal barrier can be described as a material which limits the speed by which heats transfers through a material. If you review the CAN4-S124-M standard, you will see that essentially the material is installed over a furnace which produces a temperature of 704°C. The protective coating is installed over a piece of foamed plastic with thermal couples between the thermal barrier and the foamed plastic. The specimen is placed with the thermal barrier exposed to the furnace. When the test commences, the furnace provides the 704°C of heat and the temperature rise is measured over time between the thermal barrier and the foamed plastic. **To be a class B thermal barrier the maximum temperature increase recorded shall be no greater than 140°C when measured at the ten minute interval.***

Drawings Requirements for Building Permit Application

Division C - 2.2.5 - Drawings and Specifications for Environmental Separators and Other Assemblies Exposed to the Exterior

2.2.5.1 Application

(1) ...applies to building materials, components and assemblies to which Part 5 of Division B applies.

2.2.5.2 Information Required on Drawings and Specifications

(1) Information shown on drawings and specifications shall be clear and legible, and shall contain sufficient details to demonstrate conformance with this Code.

Division A - 1.2.2. – Materials, Appliances, Systems and Equipment

1.2.2.1. Characteristics of Materials, Appliances, Systems and Equipment.

(2) Evaluation reports issued by the Canadian Construction Materials Center, National Research Council of Canada, or an organization approved by the Chief Building Administrator may be used in determining compliance with the requirements of this Code.