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The National Material Standard for 2 lb.CC MD Sprayfoam

high performance
insulation and
**air, vapour,
radon, and
water resistive
barriers**

for safe, efficient,
comfortable and
durable buildings

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REFERENCE GUIDE

National Material Standard Requirements of 2 lb. Closed Cell Medium Density SPF CAN/ULC S705.1-15

The **National Standard for Thermal Insulation-Spray Applied Rigid Polyurethane Foam, Medium Density, Material-Specification (CAN/ULC S705.1-13)** lists a number of requirements for an approved MD CC SPF material.

These requirements can be grouped under three main categories.

- The material must meet certain physical properties outlined in 705.1.
- Installation must be by an accredited contractor who is licensed by a certification organization and who uses trained and certified installers.
- The installation must be done in accordance with the **CAN/ULC S705.2** installation standard.

The **physical properties tested** include:

- air permeance
- apparent core density
- compressive strength
- dimensional stability
- flame spread classification
- initial thermal resistance (used to calculate LTTR only)
- long term thermal resistance (LTTR)
- open cell content
- tensile strength
- volatile organic emissions
- water absorption
- water vapour permeance

MD CC SPF Spray polyurethane foam insulation must be tested in accordance with the National Standard (CAN/ULC S705.1). One can obtain significantly different results when using other standards.



National Material Standard (CAN/ULC S705.1-15)

Required Physical Properties

There are numerous requirements which must be met in order for spray polyurethane foam insulation material to meet the **CAN/ULC-S705.1** standards.

- **R-Value** - The material, when tested according to CAN/ULC standards requires that 100% of the declared R-Value must be achieved. Other material standards allow one to achieve 90% and still declare 100%. This means that the Customer is getting short-changed. In addition, the Consumers Branch of Industry Canada requires that the Customer be provided with 100% of the declared R-Value.

- **Dimensional Stability** - The CAN/ULC S705.1 material standard outlines specific requirements for dimensional stability. These have been set to ensure that the product will perform under all acceptable conditions.

- **Long Term Thermal Resistance** - It is now a requirement in Canada that all thermal insulations which incorporate a captive blowing agent be tested according to the CAN/ULC S770 test method.

- **Water Vapour Permeance** - The material must meet a maximum water vapour permeance and the manufacturer must declare at which thickness the material achieves a water vapour permeance of less than 60 ng (Pa.s.m2). There is no more guessing as to when spray polyurethane foam insulation becomes a vapour barrier in addition to an air barrier.

- **Flame Spread Classification** - The flame spread is determined in accordance with the CAN/ULC S102 test method. This flame spread test method is completely different than the ASTM E84 test method, resulting in a completely different outcome. A flame spread of less than 25 under the ASTM E84 can produce a flame spread over 250 under the CAN/ULC S102 test method. Ensure that the test method is in accordance with the CAN/ULC S705.1 requirements.

- **Volatile Organic Emissions** - Other material standards do not require that the material be tested for volatile organic emissions (VOC's). S705.1 requires that the material be tested in accordance with CAN/ULC S774.

- **Installation by a Licensed Contractor Using a Certified Installer** - The material standard CAN/ULC S705.1 requires that the contractors will be accredited and licensed

and the installers be trained and certified. The standard requires that the installers and contractors follow a field quality assurance program that meets the CAN/UL S718-13 standard, which is delivered by an ISO-17024 accredited Certification Organization.

- **Material Installed According to the Application Standard** - The material must be installed in accordance with the requirements of the CAN/ULC S705.2 application standard. This application standard lists different requirements for the installation. More details on the application standard is provided in the **Application Standard Reference Guide**.

- **Air Permeance** - The material is required to be tested as an air barrier material. The material may also be tested as an air barrier assembly and delivered as such.