

# Spray Foam Quality Assurance in Canada

Spray Foam is a high-performance insulation and air barrier product. It is the only insulation product that functions as an air barrier without the need for additional products. The product's installation is also unique. It is applied on-site and will conform to the exact features of the building. Because the product is installed on-site, spray foam manufacturers and applicators worked with Canadian authorities to develop and implement product stewardship requirements to help ensure the product is manufactured and installed properly. There are 3 parts to the regulatory framework governing spray foam in Canada: Codes and Standards, Evaluations and Listings, and Certifying Organizations.



CAN/ULC Standard S705.1 - the product Standard for Medium Density (Closed Cell) SPF was developed in the early 2000s and has been referenced in the NBCC for more than 10 years. CAN/ULC Standard S712.1 - the product Standard for Light Density (Open Cell) SPF was developed over the last 10 years and will be referenced in the 2020 NBCC. S705.1 and S712.1 set performance standards for open-cell and closed-cell spray foam.

CAN/ULC is also developing new standards for low pressure spray foam kits, one-component cans, and high-density spray foam roofing material. These standards will likely be referenced in future versions of the NBCC.

CAN/ULC product standards also include standards for the application of SPF. CAN/ULC S705.2 is the Application Standard for Medium Density SPF. Similarly, CAN/ULC S712.2 is the Application Standard for Light Density SPF. Both of these standards identify training requirements for Certified Installers and quality control processes aimed at ensuring Code-compliant applications in the field.

## Codes and Standards

Canadian building codes and product standards are key tools to help ensure building products, such as spray foam, are manufactured and installed safely. Individual provinces develop and oversee their own building codes. Provincial codes are generally modeled on the National Building Code of Canada (NBCC) although there may be slight differences in each province. These differences often relate to the specific version of the NBCC used to develop provincial codes. CAN/ULC has also developed product specific codes that are referenced in the NBCC and provincial codes.

## Evaluations and Listings

Before these standards were developed, manufacturers demonstrated Code acceptance using *Evaluations* carried out by the Canadian Construction Materials Centre (CCMC), a division of the National Research Council of Canada. *Evaluations* were typically issued a 5-digit listing number with the suffix "E" after the number. That number is used on product packaging labels and product technical data sheets.



Now that the SPF industry has Canadian standards, manufacturers can get *Listings* (identified by a similar 5-digit number only with the suffix “L” attached). There are many agencies that maintain listings for life safety and code-compliant products such as CCMC, Canadian Standards Association (CSA), Canadian Gas Association (CGA), Underwriters Laboratories Canada (ULC), and Warnock Hersey –ETL- Intertek. CMMC and ULC maintain listings for spray foam products.

*Listings and Evaluations* generally capture a number of key pieces of information pertaining to spray foam products including:

- Information describing the manufacturing entity who produces or distributes the product.
- Third party testing data related to material properties. The specific tests that are required are outlined in the appropriate Product Standard.
- Information pertaining to the version of the Standard(s) referenced for each of these tests.
- Identification of the R-value, determined by Long Term Thermal Resistance (LTTR) testing. R-values allow applicators to determine the suitable application thicknesses.

In addition, manufacturers commit to maintaining quality assurance processes in plants in conformance with International Standards such as ISO 9001 and they must declare the Certification Organization (CO) they intend to use for their Site Quality Assurance Program (SQAP).

## Certification Organizations

Spray foam must be properly applied in the field to deliver the properties identified in the manufacturer’s listing. The Site Quality Assurance Program (SQAP) is a key part of the manufacturer’s quality commitment. Currently, there are 4 COs that have been qualified to provide SQAP for SPF products in Canada:

- Building Professionals Canada (BPC)
- Caliber QAP
- Canadian Urethane Foam Contractors Association (CUFCA)
- Urethane Foam Consultants (UFC)

These organizations are responsible for: certification (and recertification every 5 years) of licensed installers of spray foam products, quality assurance inspections (particularly on larger projects), listing of contractor companies, and the provision of technical assistance to designers and builders. Product manufacturers can designate only one CO to be responsible for SQAP on their product(s) and this organization must maintain processes in conformance to various quality control standards specifically:

- CAN/ULC S718- Sets out roles and responsibilities of SPF COs
- International Standard ISO/IEC 17024 – Conformity Assessment – Sets out the General Requirements for bodies operating Certification Programs for Persons
- International Standard ISO/IEC 17020 – Conformity Assessment – Sets out Requirements for the operation for bodies performing Inspections

The National Building Code of Canada does not reference these standards directly because it primarily sets out requirements for products and assemblies of product. However, the Appendix to the 2020 NBCC refers to CAN/ULC S718 and guides users to the types of quality assurance processes that are envisaged.

## Summary

**SPF has one of the most comprehensive Quality Assurance Programs in the construction industry. The program starts with Code-prescribed Standards, Listing Agencies that monitor and verify compliance of products to Canadian Codes and Standards, and Certification Organizations that help ensure proper application in the field. The end result is high performance insulation both in lab test results and in field performance.**