

Terms and Definitions In Canada

Most of the following terms and definitions are taken directly from the National Building Code and referenced Test Methods. Learning these terms will provide an important knowledge base to understanding the requirements for Firestopping.

- Fire Compartment
- Fire Separation
- Firewall
- Fire Resistance Rating
- Combustible Construction
- Noncombustible Construction
- Firestop System
- Firestop Systems Report
- Listed System Designs
- Service Penetration
- Firestop Material
- Single Component Firestop System
- Multiple Component Firestop System
- Tightly Fitted
- Third Party Testing Agency
- Authority Having Jurisdiction
- References And Acceptable Standards Canada
- CAN/ULC S101 (Test Specimen)
- CAN/ULC S115-95 Fire Test Sample
- CAN/ULC S115-95 "F" Rating Fire
- CAN/ULC S115-95 "FT" Rating Fire & Temperature
- CAN/ULC S115-95 "FH" Rating Fire & Hose
- CAN/ULC S115-95 "FTH" Rating Fire Temperature & Hose
- CAN/ULC S115-95 "L" Rating (Optional) Leakage Rate
- CAN/ULC S115 Test Reporting

Fire Compartment

Fire Compartment; means an enclosed space in a building that is separated from all other parts of the building by enclosing construction providing a Fire Separation having a required fire-resistance rating. (ref: NBC Part 1 Section 1.1.3.2).

Fire Compartments are also referred to as Fire Zones.

Fire Separation

Fire Separation; means a construction assembly that acts as a barrier against the spread of fire. A fire separation may or may not have a fire-resistance rating. (ref: NBC Part 1 Section 1.1.3.2 & Appendix A)

Firewall

Firewall; means a type of fire separation of noncombustible construction which subdivides a building or separates adjoining buildings to resist the spread of fire and which has a fire-resistance rating as prescribed in the NBC and has structural ability to remain intact under fire conditions for the required fire-rated time. (ref: NBC Part 1 Section 1.1.3.2).

Fire Resistance Rating

Fire Resistance Rating; means the time in hours or fraction thereof that a material or assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified conditions of test and performance criteria, or as determined by extension of interpretation derived therefrom as prescribed in the National Building Code. (ref: NBC Part 1 Section 1.1.3.2).

Combustible Construction

Combustible Construction; means that type of construction that does not meet the requirement for noncombustible construction. Combustible means that a material fails to meet the acceptance criteria of CAN/ULC S114, (Standard Method of test for determination of non-combustibility in Building Materials) (ref: NBC Part 1 Section 1.1.3.2).

Noncombustible Construction

Noncombustible Construction; means that type of construction in which a degree of fire safety is attained by the use of noncombustible materials for structural members and other building assemblies. Noncombustible means that a material meets the acceptance criteria of CAN/ULC S114, (Standard Method of test for determination of non-combustibility in Building Materials) (ref: NBC Part 1.1.3.2).

Firestop System

Firestop System; means a specific construction consisting of any device intended to close off an opening or penetration during a fire and/or materials that fill an opening in a wall or floor assembly where penetration is by cables, cable trays, conduits, ducts, pipes and any poke through termination device, such as electrical outlet boxes along with their means of support through the wall or the floor opening. (ref: CAN/ULC S115 Section 1.7).

Firestop System Test Report

Firestop System Test Report; means results reported in accordance with the performance in the tests prescribed in the CAN/ULC S115 methods. (ref: CAN/ULC S115 Section 9.1) .

Listed Systems Designs

The Accredited Testing Agency's informational listing developed from the Firestop System Test Report. This report depicts the correct use and installation procedures for firestop materials to create a Firestop System. These published listings include:

The assembly materials, the penetrating items and the firestop components, identified and described.

Drawings depicting geometry, exact size (length, width, thickness) and location of firestop systems within the test assembly.

Service Penetration

Service Penetration; piping, tubing, ducts, chimneys, electrical wires and cables, totally enclosed noncombustible raceways, electrical outlet boxes and other similar building services that penetrate a membrane forming part of an assembly required to have a fire-resistance rating or a fire separation. (ref. NBC Part 3.1.9.1.(1)) .

Firestop Material

Firestop Material; Firestop Material; means any device intended to close off an opening or penetration during a fire or materials that fill an opening in a wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and any poke-through termination devices, such as electrical outlet boxes along with their means of support through the wall or floor opening. (CAN/ULC-S115 Section 1.7) .

Single Component Firestop System

Single Component Firestop System; means a Firestop Material that has a Listed Systems Design and is used individually without the use of high temperature insulation or other materials to create a firestop system.

Multiple Component Firestop System

Multiple Component Firestop System; means the exact group of Firestop Materials that are identified within a Listed Systems Design to create a on site Firestop System.

Tightly Fitted

Tightly Fitted; (ref: NBC Part 3.1.9.1.1 & 9.10.9.6.1) means penetrating items that are cast in place in buildings of Noncombustible Construction or have "0" annular space in buildings of Combustible Construction. The words "tightly fitted" should ensure that the integrity of the fire separation is such that it prevents the passage of smoke and hot gases to the unexposed side of the fire separation. (ref. NRC National Research Council , letter dated July '94) .

Third Party Testing Agency

Third Party Testing Agency; means any accredited Standards Council of Canada notified testing agency approved to perform Fire Endurance Testing as outlined in this section of Work which includes any of the following agencies; (ref: NBC Appendix A.2)

Underwriters Laboratories (Canada). CUL mark.

Underwriters Laboratories (United States), CUL mark. Only tests performed to the CAN/ULC S115 Standard after the SCC Canadian accreditation date of October 14 1994 will be accepted. Extrapolations from United States of America ASTM E-814 tests are NOT ACCEPTABLE. ASTM E-814 test methods do not required a hose stream on assemblies up to 1 hour, the hose stream test is a mandatory requirement of the CAN/ULC S115 test method.

Intertek Testing Services . (formerly Warnock Hersey), WH mark.

Authority Having Jurisdiction

Authority Having Jurisdiction (AHJ); means the governmental body responsible for the enforcement of any part of the NBC or the official or agency designated by that body to exercise such a function and/or the Architect. (ref: NBC Part 1.1.3.2) .

REFERENCES AND ACCEPTABLE STANDARDS CANADA

Can/ULC S101

Standard Method of Fire Endurance Tests of Building Construction Materials

Can/ULC S115

Standard Method of Fire Tests of Firestop Systems

Can/ULC S102

Standard Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies .

CAN/ULC S101 Article 2 Test Specimen

2.1 The test specimen shall be truly representative of the construction for which classification or rating is desired, as to materials, workmanship, and details such as dimension of parts, and shall be built under conditions representative of those obtaining as practically applied in building construction and operation. The physical properties of the materials and ingredients used in the test specimen shall be determined and recorded.

2.3 The size and dimension of the test specimen specified herein are intended to apply for rating constructions of dimensions within the usual general range employed in buildings. If the condition of use limit the construction to smaller dimensions a proportionate reduction may be made in the dimensions of the specimens for a test qualifying them for such restricted use.

CAN/ULC S115-95 Fire Test Sample

4.1.1. Construction: The construction of the test firestop systems shall include conduits, pipes, cables (jacket types, sizes, conductor type, per cent fills), required supports, poke through devices or other through-penetrating items so as to produce a truly representative firestop system for which evaluation is desired. Firestop systems shall be installed and tested in each construction type for which ratings are desired.

4.1.2 Through-penetrating items are to be installed such that they extend 300mm beyond the firestop system on the exposed side and 900mm on the unexposed side. The extended portion of the through penetrating item on the unexposed side shall be supported in the same manner as methods employed in field installation.

4.1.3. The exposed individual ends of pipes or conduits or both shall be covered and sealed by suitable means to prevent excessive transfer of gases through the items between the furnace and the laboratory environment. The individual ends of pipes or conduits or both which are located on the unexposed side of the assembly shall not be covered or sealed.

CAN/ULC S115-95 "F" Rating Fire

8.2.1 Firestop systems shall be considered as meeting the requirements for an F rating if it remains in the opening during the fire test for the rating period without permitting passage of flame through openings, or the occurrence of flaming on any element of the unexposed side of the firestop system.

CAN/ULC S115-95 "FT" Rating Fire & Temperature

8.3.1 Firestop systems shall be considered as meeting the requirements for an FT rating if it remains in the opening during the fire test within the limitations as described in Clause 7.2.1 and 7.3.2.

8.3.2 The transmission of heat through the firestop system during the rating period shall not have been such as to raise the temperature of any thermo-couple on the unexposed surface of the firestop system more than 181°C (358°F) above its initial temperature.

CAN/ULC S115-95 "FH" Rating Fire & Hose

8.4.1 A firestop systems shall be considered as meeting the requirements for the "FH" rating if it remains in the opening and does not permit the passage of flame during the fire test and remains in the opening during the hose stream test within the limitations as described in Clauses 8.2.1 and 8.4.2

8.4.2 During the hose stream test, the firestop system shall not develop any opening that would permit a projection of water from the stream beyond the unexposed side.

CAN/ULC S115-95 "FTH" Rating Fire Temperature & Hose

8.5.1 A firestop systems shall be considered as meeting the requirements for the "FTH" rating if it remains in the opening and does not permit the passage of flame or increase in temperature during the fire test and remains in the opening during the hose stream test within the limitations as described in Clauses 8.2.1, 8.3.2 and 8.4.2.

CAN/ULC S115-95 "L" Rating (optional) Leakage Rate

8.6.1 The "L" rating shall be reported as the largest test sample leakage rate, Q, determined from the air leakage test. Separate ratings may be identified for each individual air pressure and temperature exposure, or both.

CAN/ULC S115 Test Reporting

9.1 Results shall be reported in accordance with the performance in the tests prescribed in these methods. Reports shall include the following:

The assembly, the materials and penetrating items of the test firestop systems shall be identified and described. Drawings depicting geometry, exact size (length-width-thickness) and location of firestop systems within the test assembly shall be recorded;

The moisture content of the test assembly and firestop material, if applicable, shall be reported.