



FIRESTOPPING GLOSSARY

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FIRESTOPPING GLOSSARY

Ablative:

Ablative materials are those which become 'spent' over time when exposed to fire. The materials absorb heat and form a char, which acts as an insulative barrier between the fire and the firestopping materials in order to help achieve the required fire rating.

Active Fire Protection:

A system or group of systems that require some form of action or motion in order to work in the event of a fire. These actions may be manually operated, or automatic. Detection systems, like smoke alarms; and suppression systems, like sprinkler systems are examples of active fire protection.

Annular Space:

The distance between a penetrating item and the inside edge of the surrounding opening.

Approved System:

Systems that have been tested and meet the criteria of ASTM-E814 by an independent, recognized testing facility. The Authority Having Jurisdiction may also make specific product and system evaluations to determine compliance with any applicable standards. Firestopping materials are only one component of an approved system, and must be tested to ASTM-E814 as part of that system in order to be classified for use in an application.

ASTM-E119:

The Standard Test Methods for Fire Tests of Building Construction and Materials. The test is conducted to evaluate the ability of a fire resistive assembly to perform its barrier function – resisting the passage of heat, flames, hot gases, and smoke in a fire situation.

The test consists of exposure of the assembly to a standard time temperature curve and hose stream test. The assembly is monitored for flame penetrations through the assembly, temperature increase on the unexposed side, and structural failure. At the conclusion of the test, the assembly is given an F and T rating to determine its fire and temperature resistive qualities.

ASTM-E814:

The Standard Test Methods for Fire Tests of Penetration Firestopping Systems. The ASTM-E814 test is complementary to ASTM-E119, and measures the ability of an assembly to return an fire-rated assembly (as determined by ASTM-E119) to its original fire rating when the assembly has been compromised.

The tests consists of exposure of the system to a standard time temperature curve and a host stream test. The system is monitored for flame penetrations through the system, temperature increase on the unexposed side of the system, and structural failure. At the conclusion test, the system is assigned an F and T rating to determine its fire and temperature resistive qualities. Optional W and L ratings can also be obtained, measuring water penetration and air leakage respectively.

ASTM-E84:

Surface Burning Characteristics of Building Materials. The ASTM-E84 test typically refers to the flame spread and smoke development characteristics of a product. Despite being similarly named, ASTM-E84 is **NOT** the same as ASTM-E814 "Fire Tests of Through Penetration Firestops".

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ASTM-E136:

Standard Test Method for Assessing Combustibility of Materials. The ASTM-E136 test is used in the absence of a specified test, and in non-rated, combustible construction. The tests consists of placing only the material into a small tube furnace. The material is monitored to the weight the specimen loses as well as whether its fuel content raises the air temperature in the furnace. Products meeting only ASTM-E136 can not be used in lieu of ASTM-E814 tested products.

Authority Having Jurisdiction (AHJ):

The organization, office, or individual responsible for enforcing the requirements of a code or standard; or for approving equipment, materials, an installation, or a procedure.

Backing (Packing or Forming) Material:

Materials used within or around a firestop system to set the depth, provide support for the fill, void, or cavity material, improve the system's fire resistance, or a combination of the above. Examples of these materials include backer rod, mineral wool, and ceramic fibers.

Building Separation Wall:

Also known as a Fire Wall. A fire-rated wall with protected openings, which runs continuously from the foundation to/through the roof, designed to limit the spread of fire.

Cast-In Device:

Firestopping devices that are installed before the concrete slabs are poured.

Combustible:

Items that are capable of undergoing combustion; able to catch fire and burn quickly.

Compartmentalization:

Dividing the structure into 'boxes' which can include one or several rooms in order to help limit the spread of fire.

Concentric:

Centered. The penetrating item is positioned in the center of the surrounding opening.

Continuous Point Contact:

The penetrating item is in full, unbroken contact with the inside edge of the surrounding opening.

Detection Systems:

Active fire protection systems designed to discover fire early in its development, when there is still time for the safe evacuation of occupants while enabling fire control efforts while the fire is small.

Draftstopping:

A material installed to limit the movement of air within open spaces of concealed areas within a building structure, such as crawl spaces, attic spaces, floor-ceiling and roof-ceiling assemblies.

Eccentric:

The penetrating item is positioned off center in relation to the surrounding opening.

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Egress:

The action of exiting a place.

Endothermic Reaction:

A chemical reaction that absorbs heat. In a fire situation, endothermic firestop materials release water in the form of steam which, in turn, aids in cooling other protected items.

Engineering Judgment:

A recommendation by the manufacturer of a firestopping product regarding how to firestop an application that deviates from a tested and listed design and/or no corresponding tests exist for. The judgment is made by combining existing systems and testing with sound engineering practice.

Exothermic Reaction:

A chemical reaction that releases heat.

F-Rating:

The time, usually expressed in hours, that a fire resistive barrier or system prevents the passage of flame, smoke, and gases while retaining its structural integrity.

Fill, Void, Or Cavity Material:

A firestopping material such as caulks, sealants, and putty products.

Fire Barrier:

A fire resistant assembly, either vertical or horizontal, consisting of fire resistant materials and having protected openings, constructed with specified fire resistance rating to limit the spread of fire, smoke, heat, and gases.

Fire Barrier Wall:

Also known as a Fire Separation Wall. A fire-resistive assembly with protected openings, designed to limit the spread of fire.

Fireblocking:

Where assemblies do not require a rating, fireblocking is used. This is typically performed in single-family, wood frame construction; multi-family construction of less than three stories in non-rated partitions. Fireblocking products are tested to ASTM-E136.

Fire Compartment:

A space within a building which is enclosed on all sides, including the top and bottom built to limit the spread of fire to other areas.

Fire Damper:

A damper installed to automatically close at the detection of heat, in order cut off airflow through part of an air duct system to restrict the passage of heat and flame.

Fire Door Assembly:

An assembly consisting of a fire door, the frame, and any hardware or other accessories which provides a specified degree of fire protection to the opening.

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Fire Partition:

A vertical assembly with protected openings which is designed to restrict the spread of fire.

Fire Resistance:

The ability of a material, assembly, or system that prevents or limits the passage of heat, flames, smoke, and gases during a fire situation.

Fire Resistive Joint System:

An assembly of materials designed to prevent the spread of fire through joints made in or between other fire rated assemblies.

Firestop / Firestop System:

A type of passive fire protection system that limits the spread of flame, smoke, heat, and gases by compartmentalizing multi-family and commercial building structures through the use of tested and approved systems which are comprised of firestopping materials and other components (such as the fire-rated assembly, the penetrating item and the opening through which it passes).

Hose Stream Test:

A portion of ASTM-E119 and ASTM-E814 tests where pressurized water is sprayed onto the assembly after it has been exposed to heat for the specified time period in order to determine the structural integrity of the assembly or system. The pressurized water represents external forces the assembly or system may be exposed to.

Insulative:

Insulative firestop materials provide a physical barrier against heat and flame, helping to maintain and protect the assembly/system.

Intumescent:

Intumescent substances expand (intumesce) when exposed to heat. Intumescent firestop materials expand and form a hard char to seal and protect the system.

L-Rating:

A rating which measures the airflow through a system. An L rating is used in firestop systems as a representative measure for the passage of smoke.

Membrane Penetration:

Penetrations wherein the penetrating item(s) enter one side of the assembly but do not breach the other side, instead remaining in the wall cavity. Examples of membrane penetrations include electrical boxes and sink drains.

Noncombustible:

Items that resist or do not experience combustion; unable to catch fire and burn quickly.

Passive Fire Protection:

A group of systems designed to contain or slow the spread of fires by compartmentalizing the structure.

Perimeter Joint:

A joint between a curtain wall and floor slab, used in high-rise building construction.

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Point Contact:

The point where the penetrating item touches the edge of an opening.

Pullout Strength:

The amount of force required to pull the fastener out of the base material. Firestop systems that require the use of fasteners, such as firestop collars, will indicate the type, material, and pullout strength of the fastener.

Smoke Barrier:

A barrier consisting of walls, floors, partitions, and protected openings that are designed to prevent the transmission of smoke and/or gases.

Smoke Compartment:

A space within a building which is enclosed on all sides, including the top and bottom, built to limit the spread of smoke and gases to other areas.

Smoke Damper:

A device installed to automatically close at the detection of smoke in order cut off airflow through part of an air duct system and restrict the passage of smoke and gases.

Smoke Seal:

Sealing only against the proliferation of smoke and gases through an assembly joint or penetration.

Suppression System:

Active fire protection systems that are designed to extinguish or lessen the intensity of a fire while also helping to limit its spread. These systems may release water, wet or dry chemical agents, gaseous vapors, or other suppressant chemicals.

T-Rating:

A rating which measures the thermal conductivity of a fire resistive assembly or system and can be considered a temperature rating. The T-rating indicates the time required for various points on the unexposed side of the tested assembly or system to rise 325°F over the ambient temperature.

Type I Construction:

Construction in which the structural components are noncombustible.

Type II Construction:

Construction in which structural components are comprised entirely of noncombustible materials or materials with limited combustibility as permitted by building codes and protected to have some level of fire resistance.

Type III Construction:

Construction in which all or part of the interior structural components may be of combustible materials or other materials as permitted by applicable building codes.

Type IV Construction:

Construction in which structural components are comprised of effectively unprotected wood, with large cross sectional areas.

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Type V Construction:

Construction in which the structural components are entire of wood or any other material permitted by applicable building codes.

UL Fire Resistance Directory:

A UL publication which contains descriptions and ratings of firestop systems.

W-Rating:

A rating which measures the system's ability to restrict the passage of water.