



FIRESTOPPING VS. FIREBLOCKING

**THE INTEGRITY OF ALL FIRESTOPS, FIREBLOCKS, AND
DRAFTSTOPS SHALL BE MAINTAINED**

By Jason Lynch
Everkem Diversified Products



120 REGENT DRIVE | WINSTON-SALEM, NC 27103

PH: 1-800-638-3160 | FX: (336) 661-7969

WWW.EVERKEMPRODUCTS.COM

FIRESTOPPING VS FIREBLOCKING

THE INTEGRITY OF ALL FIRESTOPS, FIREBLOCKS, AND DRAFTSTOPS
SHALL BE MAINTAINED

Are you familiar with the differences between the products that are required for fireblocking applications vs. firestopping applications? Did you think they were the same? Be careful if you see a UL marking on the back of a can of foam, you want to be sure you are selling and installing these products correctly.

Firestopping is required wherever a fire-rated floor or wall separation is encountered, in multi-family residential and commercial constructions. Fire-rated separation walls are required to be between units, in multi-family residential constructions. Fire-rated floors are **only** required for buildings with three stories or more. While these are the general **construction design rules, there may be exceptions.**

During the construction process, penetrations are made partially through (membrane penetration) or completely through (through penetration) these fire-rated separations. This is done by the trades, to run electrical wires and cables, plumbing pipes, HVAC ducts, and other mechanical items. These penetrations violate the original integrity of the fire-rated floor/wall system, allowing the passage of flame, smoke, and toxic gases to move to other areas of the building in the event of a fire.

In the early 1980s, ASTM (American Society for Tested Materials) established the “Test Method for Fire Tests of Through-Penetration Firestops.” This test procedure is known as “**ASTM-E814**” and has an equivalent UL test known as “**UL 1479**”. These test standards have been adopted by all model building codes in the United States and have established specific guidelines to address the penetrations made through the fire-related floor and wall separations.

As a result, manufacturers have designed and tested complete lines of firestopping sealants and accessories, educated architects, code enforcement officials, builders, contractors, and other construction industry personnel; about the importance and the proper application of firestopping procedures.

Reminder:

FIRESTOPPING:

ASTM-E814/UL 1479 listed products for use in 1, 2, & 3+ hour fire-rated separations found in multi-family and commercial construction.

Fireblocking wood frame non-rated residential construction predates actual “through penetration” firestop testing standards such as ASTM-E814 and UL1497 by almost 30 years. All of the original legacy building codes (CABO 1&2 Family Code, BOCA, SBCCI, UBC, etc..) had prescribed applications and test standards for residential fireblocking and were synonymous in building code wording and intent. Since the inception of the International Residential Code for One and Two-family dwellings (IRC), the wording of the building code has become more ambiguous, which has allowed room for a variety of tested products. As a result, the acceptability of these products is open to interpretation and is ultimately up to the building code official or the authority having jurisdiction (AHJ) approval. Consequently, this has led to some confusion about what products comply with best building practices. As a result, the collateral damage of improperly used products has crossed over into multi-family and commercial firestopping applications.

As mentioned, firestopping products (sealants, firestop collars, wrap strips, putties, etc.) which are to be installed in multi-family and commercial construction, are tested for 1, 2, and 3+ hour rated fire separations; which are not found in single-family homes. For wood and steel-framed, single-family residential, the requirements are non-fire-rated structures and so have less than a 1-hour fire rating, though some exceptions may apply.

Important determining factors for proper firestop applications are as follows :

1. **What does the fire-rated system consist of ?**
 - a. Wood, Gypsum, Concrete?
 - b. Floor or Wall?
2. **What is the hourly rating?**
 - a. 1, 3, 4+ hours ?
 - b. 1, 2, 6+ hours ?
 - c. 1, 2, 3+ hours?
3. **What are the penetrating items and what size?**
 - a. Conduit & EMT, Steel Pipe, PVC, Joints, etc.
 - b. The size of the penetrants
 - c. The size of the openings
4. **What firestop product(s) have documented testing that meet the established criteria?**

When practicing proper firestop applications, it is strongly recommended you review the manufacturer's "Firestop Products Application Guide", "UL Assembly Diagrams", and/or the Code Enforcement Municipality having jurisdiction. Using these guides as a reference will allow you to make the proper decision in selecting the firestop product that meets your application criteria.

Reminder:

FIREBLOCKING:

ASTM-E136 and ASTM-E814 tested products for non-rated steel and wood frame residential structures.

Today, the IRC defines an "Approved" material to resist the free passage of flame and products of combustion. This wording allows for ASTM-E814, ASTM-E136, and other approved materials to be used in fireblocking applications, based upon the determination of the code enforcement official having jurisdiction. However, ASTM-E136 products are not compliant with ASTM-E814 applications. It is important to check the manufacturer's

suggested installation procedures and to consult your local building department.

Balloon framing was common in residential construction 60 years ago. This type of construction created large, open concealed spaces between each floor, extending from the basement or first-floor to the attic. Today, platform-framing or western-style construction has become the standard in residential dwellings. In this type of construction, the floor framing bearing is on load-bearing walls. Because of this, there is no concealed continuous space through the story levels or floor framing. This type of construction creates a built-in fireblock from the ceiling to floor levels, also known as top-plates. The integrity of the wood fireblocks is violated when they are penetrated for the trades to run their wires, pipes, and other mechanical penetrating items. Therefore, it must be protected with material equal to or greater than the burn time of the wood top-plate.

Traditionally, the fireblocking code sections found in the building codes, that predated the international code council, required openings around vents, pipes, ducts, and other mechanical penetrating items, at the ceiling and floor level to be fireblocked with "non-combustible" materials. The term non-combustible is defined in The IRC (International Residential Code) as "Materials that Pass the Test Procedure for Defining Non-combustibility of Elementary Materials Set Forth in ASTM-E136". Simply put, ASTM has a test standard which defines a non-combustible building material as a material that will not flame, smoke, or have significant weight-loss when subjected to 1382° F. Upon passing this test, a manufacturer can label their product or material as a "Non-combustible" or "ASTM-E136" tested product. Using an ASTM-E136 rated product fulfills the code requirements for fireblocking penetrations because the material was tested and demonstrated not to burn at far higher temperatures than the burn time and burn temperature of wood.

Everkem has multiple products that are specifically formulated and tested to satisfy the penetration Fireblocking requirements for single-family residential construction



FIRE CAULK-136

Single-Family Fireblocking Sealant

Economical and non-combustible fireblocking sealant for steel and wood-framed single-family residential construction.



FIRE SEAL-136

Residential Fireblocking Sealant

An ASTM-E814/ E-136 tested fireblocking sealant for non-rated fire, wood frame construction.



FLAME TECH-FB

Single-Family Fireblocking Sealant

Straw dispensed fireblock foam sealant for Type V residential construction to inhibit the passage of flames, smoke, and toxic gases.



THERMAL SEAL

All-In-One Foam Sealant

Gun dispensed, all-in-one foam sealant. Thermal Seal pulls double duty as an AAMA compliant window & door/insulating foam sealant and as a UL evaluated fireblocking foam for Type V residential construction.

For more information on the differences between Firestopping and Fireblocking, or for help in selecting and installing Firestopping and Fireblocking materials, contact Everkem Diversified Products.

You may also view a wide selection of comprehensive Firestopping and Fireblocking solutions, including technical and safety data sheets online at everkemproducts.com.