

# Firestopping Cable Installations

Don't introduce fire hazards when working on a new project. Ensuring your cable runs don't compromise established barriers is often your responsibility.

## WHAT IS FIRESTOPPING?

In buildings, fire protection starts with compartmentation, which is simply the construction of fire-resistant barriers—floors, floor/ceiling or roof/ceiling assemblies, and walls—in order to contain a fire. When an installer penetrates those barriers to run cabling, they must be properly sealed or firestopped.

Firestopping is the process of installing listed fire-rated materials to re-establish the fire-resistance rating of the barrier. Generally, construction drawings and specifications indicate:

- Locations that must be firestopped
- Required performance of firestopping systems
- Acceptable manufacturers

For cabling installations, it is usually up to the installer to determine appropriate firestopping means and methods that maintain code compliance.

## BEFORE YOU START

Whether you're cabling a new building or a retrofit, you need to know what firestopping might be necessary, and that requires knowledge of the barriers in place to begin with.

**1** Identify the structures that are fire-rated barriers and determine their F and T values. These are U.S. fire-rating classifications that describe, essentially, a barrier's tested ability to withstand fire and temperature increases over a required number of hours.

**2** Locate and analyze existing or planned pathways (e.g., sleeves, cable trays, or conduits) to ensure they're adequate for the services to be installed. If you need more pathways, bring it up with the general contractor.

**3** Identify the appropriate firestopping systems for your specific installation. [NOTE: The firestopping system itself is soup-to-nuts, and includes the barrier being penetrated; the construction and thickness of the barrier (e.g., concrete, drywall, or masonry); the item penetrating the barrier (e.g., cable, conduit, or cable tray); and the materials and methods for sealing the penetration.]

## BE WARNED

Firestopping systems are tested by independent labs. Underwriters Laboratories lists the greatest number of tested systems. When it comes to firestopping products, they must always be installed according to the manufacturer's instructions based on the lab testing. An installer may be held responsible if he doesn't follow the manufacturer's instructions, meaning you cannot:

- Substitute products that are not part of the qualified assembly
- Add more of a product to get a higher rating
- Add or change the type or location of penetrations

When in doubt, always contact the manufacturers to obtain written assistance for situations not covered in their installation practices for qualified assemblies. Firestopping is a practice where the manufacturer's directions are not simply the better way to do something; they're the only way to properly install an assembly that will result in a fully rated solution.

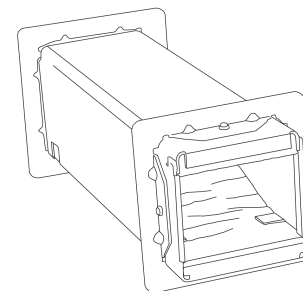
## CATEGORIES OF FIRESTOPPING

Firestopping systems can be roughly divided into two categories—mechanical and nonmechanical.

**Mechanical** firestopping systems use elastomeric firestop materials, which are flexible and resemble rubber. They are pre-sized and shaped to fit around standard cables, tubes, and conduits. Mechanical pressure holds the components in place and provides a tight seal around the penetrating devices.

**Nonmechanical** firestopping systems use materials that are pliable. These include items such as putties, caulks, blankets, pads, foams, pillows, and other types of materials that can be molded or sized to fit into an opening to seal it.

Among nonmechanical systems, one recent innovation is the fire-rated pathway, pictured here. It's a self-enclosed system that automatically adjusts to cable load. Empty or full, the pathway is always fire and leakage compliant. Moves, adds, and changes can be easily accomplished without removing or installing additional firestop materials.



## IMPROVING YOUR CHANCES

There are two ways that the method an installer uses to run cabling can limit problems and provide a better long-term solution to firestopping: using sleeves to support cables or using a cable tray.



**Sleeves:** The question of when to use sleeves may not be clearly defined within a location's code beyond the fact that you need to provide an "approved" firestop assembly. Despite being an additional cost, sleeves are frequently a better long-term solution to passing through a rated barrier because they're easier to properly firestop, provide a pathway through hollow wall construction, and allow easy placement of additional cables.

**Cable trays:** Installing a cable tray through a rated barrier may not be the best long-term solution to meeting fire safety codes. Designers often specify the use of sleeves to penetrate a rated barrier between two sections of cable tray. This allows the installer to use common materials to seal the cables within a sleeve. If the designer does not call for the use of sleeves, the installer may wish to submit a change order request rather than trying to properly seal a tray opening.

## DECISION TREE

There is no single solution or best product to be used in all firestopping scenarios. Installers have to be aware of local codes and practices. Follow these steps to ensure proper firestopping.

