

Evolution Of Firestopping

By Bill McHugh

Firestopping is part of effective compartmentation: It is the building of fire, smoke, and other resistance-rated assemblies into “boxes” in buildings. These boxes are built to keep fire from spreading from the room of origin to other parts of a building. Compartments are formed when area or fire walls separate one space from another, allowing the collapse of one side without the other sides being structurally affected. They are also formed when resistance-rated walls are con-

structed in corridors, when resistance-rated floors are built for floor-to-floor protection, and when spacing between buildings is added to protect against fire spreading from building to building.

Compartmentation is complete when doors, hardware, and glass are also fire, smoke, or other resistance rated; penetrations, head of wall, and perimeter and expansion joints are sealed with firestopping; and ductwork has fire, smoke, or fire-smoke dampers installed in walls.



Fire, smoke, and other resistance-rated construction of walls and floors are used to make egress corridors and separations between sleeping rooms in hotels, apartments, and condominiums. Most importantly, compartmentation protects people who cannot move quickly, or at all, in buildings. Think of elderly or handicapped people, or heavy sleepers who either will not wake when alarms go off or will not be able to move fast enough to flee fire or smoke as these dangers spread in buildings (whether with or without sprinklers).

Each component in effective compartmentation is a trade. Dampers are installed by trained sheet metal installers. Fire barriers and fire walls are built by educated drywall, masonry, or plaster installers. Fire doors and hardware are installed by those qualified to install these systems. Fire glass is installed by glazer installers. Firestopping is a less exact science: It is installed using the rule, "He (or she) who

pokes the hole ... fills it." How can that be, though? Are there not educated specialty contractors and installers who are responsible for installing this sensitive, life-saving system?

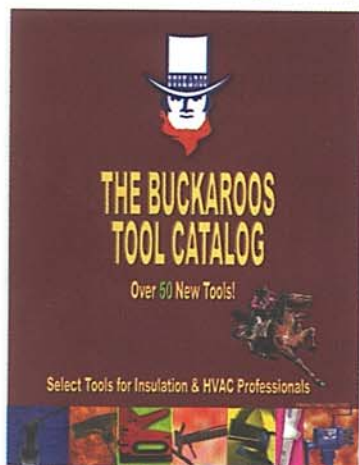
The Firestop Contractors International Association (FCIA) has led an effort over the last 8 years to bring proper attention to the fire and life safety service of firestopping. Firestopping should be treated like a real trade, with educated installers, estimators, and businesses that specialize in this highly technical field. Like pipe-covering insulation, asbestos removal, plumbing, electrical, and other trades, firestopping is a discipline.

Several positive changes have been taking place in the firestopping industry. The philosophy has been to increase the in-place reliability of firestopping and effective compartmentation through proper design, installation, inspection, and maintenance. The standard approaches for each of these phases are as follows:

- **Design:** Use tested and listed systems or engineering judgments.
- **Installation:** Use firestopping contractors who are knowledgeable, approved, and qualified.
- **Inspection:** Verify that the installation process is working.
- **Maintenance:** Use specialty firestop contractors.

The DIIM (design, installation, inspection, and maintenance) philosophy ensures that firestopping has every chance to work properly—as the systems are designed to work—in the event of fire, smoke, or other emergency. The firestopping industry ensures that proper DIIM steps are taken by using the components listed below. (Note that it takes a real team—manufacturer, contractor, and workers—in all phases of the building life cycle to keep a fire and life safety system like firestopping and effective compartmentation working.)

Hey, I got your new Buckaroos Tool Catalog ...right here!



- New for 2005-2006
- 230 select tools for the Insulation and HVAC trades
- We've added over 50 new tools!
- Buckaroos, we are your tacker and staple connection

**Call for your copy today.
It's FREE!**

PH 800-969-3113 • FX 317-899-0775
EM jrebholz12@msn.com
www.buckaroos.com



The DIIM (design, installation, inspection, and maintenance) philosophy ensures that firestopping has every chance to work properly—as the systems are designed to work—in the event of fire, smoke, or other emergency.

Firestopping Quality Processes and Firestop Contractor Qualifications

The FCIA *Manual of Practice* was introduced in 2000, and significant updates were made in 2001 and 2005. This book is used to educate firestopping industry newcomers, as well as installers, estimators, architects, engineers, specifiers, fire marshals, building officials, and firestop contractors.

The FCIA *Manual of Practice* is used by firestop specialty firms as a training document. It is also the basis of the Designated Responsible Individual (DRI) exams used for Factory Mutual (FM) approvals—such as FM 4991, the standard for the approval of firestop contractors—and in the Underwriters Laboratories, Inc. (UL) Qualification of Firestop Contractor Program.

FCIA's accreditation committee worked with both FM and UL to develop these programs as a quantifiable way to qualify a firestop contractor. FM 4991 is specified nationally in about 50 percent of specifications, and acceptance of the standard is spreading in additional market areas. These FM and UL contractor programs are audit programs of the firestop contractors' management processes. They help contractors control the selection of firestopping systems and improve communications between managers and workers in the field regarding those systems. This results in the successful installation of proper firestopping systems in the field.

Inspection Standards

Every high-quality process has an independent check-and-balance system. For installation, inspection is the check to balance the operation. American Society for Testing and Materials

(ASTM) E 2174 and ASTM E 2393, "Standards for the Inspection of Installed Penetration and Joint Firestops," now give the specifier the ability to specify each inspection to a uniform protocol.

These inspection standards—developed with FCIA contractor and manufacturer member involvement, along with the International Firestop Council—are specified widely and used throughout the world by inspectors who are not related to the contractor in any way. (That means no suppliers, distributors, manufacturers, or competitors of the installing contractor.) To ensure complete objectivity, the inspection firm is hired by the building owner.

"We use the standards, or variations of them, daily for our inspection business," says Rob Hlady of Affinity Firestop Consultants in Winnipeg, Manitoba, Canada.

Maintenance

Firestop contractors have performed maintenance services in buildings on firestopping, and they have been involved with other disciplines in compartmentation. Many specialty firestop contractors test fire and smoke dampers, as well as swinging and rolling fire doors. They also repair fire and smoke resistance-rated walls and floors for clients as a one-stop service provider. Standards are now being developed for this important part of effective compartmentation.

The Firestopping Trade

The recent transition in the firestopping industry and the standards that have resulted were all developed to bring reliability,



SECURE INSULATION IN A SNAP!

INTRODUCING THE NEWLY-IMPROVED KLO-SHURE® INSULATION COUPLING SYSTEM



- Installs in seconds!
- One piece design
- Supports tubing and secures insulation
- Eliminates insulation compression



- No metal clamps
- Superior vapor barrier
- Improved finish – no tape, no glue
- Meets the 25/50 flame spread/ smoke developed index




KLO-SHURE®

1-800-839-0891
www.klo-shure.com

Now, installing pipe insulation is a snap with Klo-Shure. Our new one piece design lets the installer insert the Klo-Shure Coupling into channel and lock the top – all in the snap of a finger. No glue, no tape and no separate parts.

Contact us today to learn more about how the Klo-Shure Insulation Coupling System can make your next project a snap.



respect, and an attitude of professionalism to the firestopping trade. There is now an increased focus on the importance of properly installing firestopping.

The Firestopping Apprenticeship Program is one new initiative in the industry. The U.S. Department of Labor has worked with O-Net to create the classification code 47-2131.00, Firestop/Containment Worker, which falls under the "Insulation Worker" classification. This formally establishes firestopping as a trade. Because of this, firestopping can now become an apprenticeship trade in the eyes of the U.S. Department of Labor.

Evolution

The evolution of a trade can take place in a variety of ways. Other trades evolved over hundreds of years. Firestopping in buildings was only invented in the late 1970s when the need arose from the Browns Ferry Nuclear Power Plant disaster. At that time, urethane foam was used as a firestop.

Test standards UL 1479 and ASTM E 814 were developed for penetrations, and they eventually evolved into UL 1479 and ASTM E 1366 for joints, and ASTM E 2307 for Perimeter Fire Containment Systems. But even if test standards are well written

and manufacturing processes are International Standards Organization (ISO) qualified, it has been proven that unless a total system DIIM approach is used, firestopping may not perform as tested.

"In almost 30 years of existence, the firestopping industry is still evolving," says Robert Gray of National Firestop, Ltd., in Winnipeg, Manitoba, Canada.

The firestopping industry has evolved in many ways in a very short time. In 1997, the only qualification that existed in the firestopping industry was the ASTM and UL Fire Test Standards for materials.

In a short 10 years, the firestopping industry has developed a complete DIIM mindset, with reputable standards in place for execution. The industry is working to develop standards and programs that will ensure that effective compartmentation is properly designed, installed, inspected, and maintained for all of our safety. ☺

Bill McHugh is executive director of the Firestop Contractors International Association. For more information, please contact him at 708-202-1108 or visit www.fcia.org.



This Patented design makes not only the insulation of valves easier; it saves in untold labor and expense. The CORICK VALVE COVER offers substantial savings over traditional methods of fabrication and installation. The 1" thick cover also meets industry standards.

- Savings from \$10.00 to \$30.00 in Labor and Material
- Insulation times from 5 Minutes to 30 Minutes Per Valve
- Can be used at temperatures of +35F to +200F
- Covers have a 25/50 fire rating
- Custom made for all valve types
- Comes in sizes 2 ½" to 6"
- *Larger sizes available upon request*

Please visit WWW.CORICK.COM for pictures and video of this exciting new product or call (888) 351-9556 for more information.

Corick Valve Covers 10444 Airline Hwy Bldg. #2 Baton Rouge, La 70816

