

Life Safety DIGEST

Inside this issue:

UL Launches new Qualified Contractor Program

The DRI Design Selection Examination

Contractor Qualification Programs The Big Picture

Life Safety Damper Maintenance and Inspection





**SERVICE.
TECHNOLOGY.
INNOVATION.**

**It's what separates us
from the rest!**

Firestop Solutions for all types of construction and retrofit applications



Specified Technologies, Inc. is a leading manufacturer of Firestop products that help stop the spread of fire, smoke and toxic fumes. For over 15 years we have invested heavily in research, product development and testing. Today, we have the broadest range of UL® Classified systems on the market.

Call us today and benefit from our service, technology and innovation.



Specified Technologies, Inc.

THE FIRESTOP AUTHORITY

200 Evans Way • Somerville, NJ 08876
Toll Free: 800-992-1180 • Fax: (908) 526-9623

www.stifirestop.com

Life Safety DIGEST

On the Cover:

Photo © Tony Gamble & Bert Hugger, Apex Firestop. Effective Compartmentation is a big part of the Texas skyline.

FCIA Board of Directors

Michael Dominguez, 2007 President
Firestop Specialties, Inc., Miami, FL

Tom Hottenroth, Vice President &
2008 President Elect
Firestop Solutions, Inc., Bohemia, NY

Robert Svoboda, Treasurer
S&W Waterproofing, Inc., Kansas City, MO

Scott Rankin, Secretary
Pyro-Stop, LLC, Philadelphia, PA

Aedan Gleeson, Director
Gleeson Powers, Inc., Franklin, MA

Bill Hoos, Director
JHC Firestop, Inc., Montvale, NJ

Michael Wellons, Director
Firestop Carolinas, Inc., Mooresville, NC

Don Murphy, Past President
PPMI Firestop, Inc., Greenfield, IN

Bob LeClair, Past President
A.F. Underhill, Inc., Canton, MA

Bill McHugh, Executive Director
Firestop Contractors International Association
Hillside, IL

Subscription information: To subscribe, visit www.fcia.org, click on Life Safety Digest, subscribe. For further information, contact FCIA at 708-202-1108 or e-mail info@fcia.org.

Life Safety Digest, Volume 3, No. 2, is published quarterly by The McGraw-Hill Cos. for the Firestop Contractors International Association. Information has been obtained from sources believed to be reliable. However, because of the possibility of human or mechanical error by our sources, the Firestop Contractors International Association does not guarantee the accuracy or completeness of any information and is not responsible for any errors or omissions of for the results obtained from use of such information. The publisher reserves the right to censor, review, edit, reject or cancel any materials not meeting the standards of Life Safety Digest.

Photocopy Permissions: Life Safety Digest Magazine Reprints are available from FCIA headquarters; 1-100 - \$.95/issue; 101-500 - \$.90/issue ; 501-1000 - \$.80/issue; 1000+ - \$.70/issue. All shipments FOB Hillside, IL, 60162. Advertisers receive a reprint discount.

Where necessary, permission is granted by copyright owner for those registered with Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, www.copyright.com, to photocopy any article herein for personal or internal reference use only for the flat fee of \$2.00 per copy for each article. Send payment to CCC.

Online Availability: Archives of the full magazine, including ads, text of articles and selected tables in this publication are available at www.fcia.org.

Copyright ©2007, FCIA, the Firestop Contractors International Association

Contents

Editors' Message	5
UL Launches new Qualified Contractor Program <i>by Betsy Titus</i>	7
The DRI Design Selection Examination <i>by Jeffrey E. Gould</i>	11
Contractor Qualification Programs The Big Picture	15
Life Safety Damper Maintenance and Inspection <i>by Mark Belke</i>	17
Industry News Code Corner Testing & Qualification News Industry Calendar	19



Your job just got easier.

Hilti. Outperform. Outlast.

When it comes to Life Safety and building code compliance, Hilti provides the complete solution with a wide range of easy-to-install firestop products, the best technical support and fastest turnaround time on Engineering Judgments for unique applications. In addition, Hilti provides on-site support, specialized firestop training and contractor accreditation. For what you need on the job every day, no one does it better than Hilti.

Editors' Message

Effective Compartmentation involves dividing large areas into 'boxes' (compartments) to contain fires to the room or area of origin until either automatic suppression holds the fire, firefighters extinguish the blaze, or it runs out of oxygen.

The elements of Effective Compartmentation are fire, smoke or other resistance-rated floors and walls, with openings protected by firestopping, fire and smoke dampers, swinging and rolling fire doors, and fire rated glazing systems all working as a system for protection and/or security.

Effective Compartmentation needs attention to detail, just like any other

trade in construction. As an industry, we've been focused on what really counts....Proper "Design, Installation, Inspection and Maintenance" of the Effective Compartmentation Systems. Look inside for articles that support this important concept. From manufacturer testing, to specification by professionals based on clear code requirements, field installation and inspection, and finally maintenance by building owners and managers, we all have an important job to do for fire and life safety.

Join the associations that support effective compartmentation and FCIA because as a group, our educa-

tion will establish fire and life with compartmentation as a key component. Effective Compartmentation saves lives.

FCIA Editorial Committee

Mike Dominguez, President

Don Murphy, Past President

Bob LeClair, Past President

Aedan Gleeson, Board Member

Bill McHugh, Executive Director

FCIA Membership is for you!

FCIA is a very dynamic group of Firestopping Contractors, Manufacturers, and Associate Members. FCIA represents the Specialty Firestop Contractor & Industry while promoting Firestopping, Effective Compartmentation and Total Fire Protection Concepts.

FCIA Members enjoy the following benefits:

- FCIA Life Safety Digest Magazine
- FCIA Enewsletter
- FCIA Tools for Specialty Firestop Contractors & Industry
 - Industry Education Presentations
 - Website Contractor Listings & Resources
 - Firestopping & Compartmentation Resource Articles
 - Firestop Education Powerpoint CD's
 - FCIA Firestop Industry Manual of Practice (*\$295 members*)
 - Firestop Education DVD (*\$145 members*)
 - Firestopping Trade Show Booth
- Building & Fire Code, Architect, Building Owner & Manager Promotion
- FCIA Conferences - *FCIA's Education and Committee Action Conference, and FCIA Firestop Industry Conference and Trade Show.*

Join FCIA now, and get involved in a vibrant group. Learn and form lifelong friendships, with others who are into Firestopping and Compartmentation with passion! Visit <http://fcia.org/membership.htm> for an application!



4415 W. Harrison St. #322A
Hillside, IL 60162
708-202-1108 • 708-449-0837 Fax
Website: <http://www.fcia.org>
Email: info@fcia.org

Fire protection for superior in-place Performance.

MONOKOTE®
FIREPROOFING

flamesafe®
Firestop Products and Systems



Grace Construction Products

Protecting a building from fire is serious business. Whether it is FIREPROOFING or FIRESTOPPING your building needs, Grace Construction Products has the solution.

Grace's Monokote® spray applied cementitious fireproofing provides a formidable last line of defense in the event of fire.

Grace FlameSafe® firestopping products and systems have helped save lives through superior solutions that compartmentalize and contain fire and smoke within a building.

Grace's vast testing coverage and experienced technical service team ensures that you have the solution you need when you need it, now!

866-333-3SBM (3726)

www.graceconstruction.com

GRACE

UL Launches new Qualified Contractor Program

By Betsy Titus

Underwriters Laboratories Inc. has long been the leader in testing, certifying and rating firestop systems and spray-applied fire resistive materials (SFRMs). UL now offers a certification program for the installers of Firestop Systems and SFRMs.

On Dec. 5, 2006, UL announced the launch of a new program - the Qualified Contractor Program - that makes it possible for specialty firestop systems and SFRM contractors to differentiate themselves in the marketplace through third-party assessment and certification. The new program also provides architects and general contractors - as well as regulatory authorities, material manufacturers and building owners - with a resource to identify contractors that have been evaluated by an independent, third-party organization. UL created this program in response to requests from installation contractors for third-party, independent evaluation of their knowledge and best practices so they can differentiate themselves and increase confidence of architects and regulatory authorities.

Firestop Systems and SFRMs play an important role in providing passive fire resistance in building structures. Firestop materials are used to fill voids or through-hole penetrations created by services such as plumbing or electrical cables that are required to go through fire-rated floor, ceiling and wall assemblies. SFRMs are used to insulate

structural steel elements from direct impingement of a fire and enable floor, wall and ceiling assemblies to obtain hourly fire ratings. Both technologies are key elements of the passive fire protection strategy in building structures. They are products and system designs rated by UL and described in UL's Fire Resistance Directory.

Firestop Systems and SFRMs are installed in the field while a building is under construction. Their performance often depends on the quality of the selection and installation of materials and systems. In turn, selection and installation depend on the knowledge and best practices of contractors responsible for those critical processes. Unfortunately, the architects that create the building design specifications and the general contractors that select specialty contractors to install to specifications on a job site have few resources to help them identify contractors possessing the proper knowledge and utilizing the best practices.

"UL's programs include contractor firms that have demonstrated knowledge and a comprehensive management system that specifically focus on the selection and installation of firestop systems or spray-applied fire resistive materials," said J. Thomas Chapin, general manager of UL's North American Fire & Security Sector. "The contractor firm systems audited under this program provide an integrated approach - demonstrated knowledge and management system - to



controlling the processes in addressing architectural, AHJ and customer requirements."

UL Requirements for Qualified Contractors

The Qualified Contractor Program has two requirements for participating contractor firms:

- Individual knowledge assessed through an exam of a designated responsible individual (DRI) who is employed by a contractor, meets the program requirements, and is responsible for a contractor's management system, staff training and qualifications, and maintaining continued knowledge through CEUs (Continuing Education Units).
- Applied knowledge and best prac-

FIRETRAK



The Fire Trak System is a single track deflection and fire-stopping system that has passed current fire and cycle tests at Underwriters Laboratories **without** fire caulk or spray. This unique, patented innovation is what allows the Fire Trak System to deflect a full 100% of nominal joint width (installed width), for a full 100% (up to 6") of unrestricted movement on a fire rated wall.

Fire Trak has listings for use in Shaft Wall systems.

Fire Trak
2 Hr. Cavity Shadowline



- Fire Trak is U.L. 2079 Tested and Listed for up to 6" of deflection on a fire rated wall.
- Class I, II and III (seismic) cycling capabilities.
- Listings for 1, 2 and 3 hour walls.

24 hour lead time on standard track.
Major credit cards are accepted.

FIRETRAK CORP 800.394.9875 www.FIRETRAK.com info@firetrak.com

JCAHO's COMING...

...are YOU ready?

SAFE ✓ CHECK assures your Healthcare facility is
In Compliance by:

- Inspecting, cleaning, repairing or replacing fire and smoke dampers -
Using infectious control containment where necessary
- Providing customized, automated and hard copy inventory of all dampers; by request, digital photos before and after
 - Offering long term maintenance agreements
- Surveying for and installing fire stopping systems

Better **SAFE ✓ CHECK** *than sorry!*

Member: FCIA, NFPA, IAFC, SPFE, HFMA, ASHE

1.866.723.8911

www.safechecklss.com

tices assessed through an audit of the contractor firm's management system that is specifically focused on the selection and installation of Firestop Systems or SFRMs.

How the Program Works

To earn qualified contractor status, a contractor firm's DRI must pass a three-hour written exam. The contractor firm itself must pass a UL-administered audit of its management system, both at the contractor's facility and as applied on the job site.

Contractors are required to establish and effectively implement and maintain a management system that focuses on the selection and installation of firestop systems or SFRMs. Specially trained UL auditors conduct an audit of a contractor's processes to verify that processes exist and that they are being used effectively on the job. The essential processes that UL looks at include:

- Construction document requirements and review of building plans, drawings and specifications
- Selection, purchasing, storage and handling of materials
- Installation, application and field quality assurance procedures - transmitting design and installation requirements to the field
- Inspection, testing and calibration of equipment - testing to verify that installed designs meet requirements
- Control of nonconforming materials
- Installer inspections and correction processes
- Training and qualification of staff
- Audits of their own work and processes for continued improvement

How UL Developed the Requirements

The management system requirements are based on ISO 9001 principles that require a complete system of checks and balances, and practices enabling a contractor to comply with established customer requirements. Management system requirements also incorporate selection and installation best practices established by two key contractor industry associations: Firestop Contractor International Association (FCIA) and National Fireproofing Contractors Association (NFCA).

A contractor firm that meets the program requirements receives a UL certificate effective for one year. Qualified Contractors will be re-audited annually to verify that a contractor's management system continues to comply with program requirements.

Finding a UL Qualified Contractor

Once contractors have been qualified to the program requirements, you can visit UL's online directory at www.ul.com/contractor. Accessible to architects, authorities, contractors, manufacturers and building owners, the directory contains a list of Qualified Firestop Contractors and a list of Qualified SFRM Contractors.

Qualified Contractors can also promote their UL Qualified Contractor status by displaying the UL Qualified Contractor logo in their promotional materials.

The Benefits of UL's Program

The UL Qualified Contractor Program provides architects, building owners and managers, plus general contractors a resource to specify, identify and select specialty contractors that have been assessed by

an independent, third-party for their knowledge and best practices. Plus, Qualified Contractors now have a way to differentiate themselves from other contractors that have not been assessed by an independent, third-party.

While other contractor certification programs exist, UL's program has the benefit of being backed by UL's engineering staff who have years of knowledge and experience with fire resistive assemblies. This, coupled with UL's specially trained audit staff located throughout North America, provide an independent, third-party evaluation that architects, general contractors and regulatory authorities can look to for greater peace of mind. 🔥

For more information on the Qualified Contractor programs, contact Betsy Titus at (847) 664-2530 or Elizabeth.Titus@us.ul.com.

Editors Note: FCIA Member, UL Qualified Firestop Contractor firms are also listed at <http://www.fcia.org>



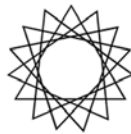
UL DRI Exam is based on the FCIA Manual of Practice, <http://www.fcia.org>

Fire-Stop Systems

Since 1979, Fire Stop Systems (FSS) has been developing, testing, manufacturing and installing it's own F.M., U.L. and U.L.C approved firestop materials with an undying commitment to quality and customer service. To this day, FSS is the only producer of firestop material which offers turnkey, single source installation of its' products - **DIRECT FROM THE MANUFACTURER**



Phone: 713-893-5232 Email: contact@firestop.cl
Houston, Texas



Superl, Inc.

Innovation in Thermal Envelope
and Firestopping Design

Office Number: 763.571.7464
Fax Number: 763.571.7646
www.superl.net



APPROVED FIRESTOP CONTRACTOR
FM STANDARD 4991



Where there's **Thermafiber®**, there's safety

Despite every precaution, high-rise fires do occur. Experts agree that the first line of defense against fire and smoke is containment. Tested, reliable methods for containing fire and smoke to the floor of origin are the Thermafiber® FireSpan® Perimeter Fire Containment Systems. In fact, they're classified by UL and Omega Point Laboratories as having up to 3-hour fire integrity ratings.

Don't risk the spread of fire and deadly gases by specifying unproven, low melt-point foam

or glass fiber insulation.

The added protection of a Thermafiber system costs little more than non-fire resistant insulation — and Thermafiber keeps a lot more than property from going up in smoke.

For more information about Thermafiber Fire Containment Systems and their classifications, visit us on the web at www.thermafiber.com or call us at 1-888-TFiber1 (834-2371).



**NEW Labor Saving, Patent-Pending, Impasse™ System • 2 and 3 hr. Fire Integrity Ratings
Smoke Containment • Dynamic or Static Conditions • Over 100 Different Classified Assemblies**



For more information, visit us on the web at www.thermafiber.com



The DRI Design Selection Examination

By Jeffrey E. Gould

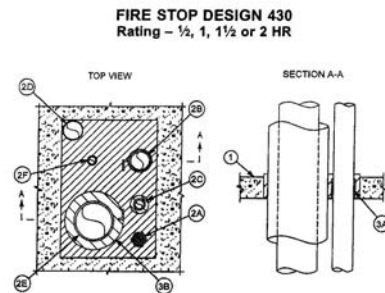
In 2001, FM Approvals issued its new Standard for the Approval of Firestop Contractors, 4991. Issuance of the standard was the culmination of a joint effort between FM Approvals and the Firestop Contractors International Association (FCIA). The purpose of the new program was to provide a tool to improve the installation, performance and reliability of fire stop systems as well as to maintain the effectiveness of compartmentation.

I worked closely with the FCIA in developing the Approval criteria, which brought the quality process into the construction subcontracting industry. When all was said and done, the Approval program contained a number of important contractor firm and individual requirements. In order to become Approved, a firestopping contractor had to be subjected to an office audit of its quality control procedures, an audit of a firestopping jobsite and annual follow-up audits. In addition, specialty firestop contractor firms must have a written quality control manual, continuing education units and demonstrated a working knowledge of firestopping.

From a certification agency standpoint, these criteria were routine except for one major item. I was used to working with products, not people. There were established test methods used to assess a products performance, but now I was working with people. How was I going to determine if someone was knowledgeable? Keep in mind that I've never had to earn a living installing firestops. How was I going to make a determination of someone's knowledge when the person had been working in the industry for 20 years or more? Then again, just because someone's been in the business for 20 years doesn't necessarily mean that they do it right, or at least right all the time.

This situation was looking like a real can of worms when I had an idea. Possibly the only fair way to qualify an individual responsible for oversight of firestopping operations was to require that a contractor have a Designated Responsible Individual (later given the acronym DRI) who would be required to take a written examination and obtain a minimum score. A contractor could employ more than one DRI but they must have at least one. This would quickly become two exams. One exam would test general knowledge and be based on the FCIA's Manual of Practice.

9-326

January 2007 — Approval Guide
Wall & Floor Penetration Fire Stops

- FIRE STOP DESIGN 430**
Rating — ½, 1, 1½ or 2 HR
- 1. FLOOR OR WALL ASSEMBLY.** Min 4½ in. (114 mm) thick lightweight or normal weight concrete floor or wall assembly. Max area of opening not to exceed 600 in² (0.39 m²), max dimension not to exceed 30 in. (762 mm).
- 2. PENETRANTS.** Various cable and piping penetrants (see below) are offset within the opening. All penetrants to be rigidly supported on both sides of the assembly. The annular space between the copper tube penetrants and the assembly is a point contact. The annular space between the other penetrants and the assembly is a minimum of ½ in. (13 mm).
- Max of one cable bundle containing the following number and types of cables:
 - 7-7/C No. 12 AWG power cables with PVC jackets.
 - 2-300 pair No. 24 AWG telephone cables with PVC jacket.
 - 13-24 fiber ½ in. (13 mm) diameter fiber-optic cables.
 - 2-500 kcmil power cables with PVC jackets.
 - 7-3/C No. 12 AWG metal clad cables.
 - A max of one 4 in. (102 mm) nominal diameter PVC plastic pipe. Two layers of CP645 Wrap Strip, 2 in. (51 mm) wide, was wrapped around the pipe and secured with tape.
 - A max of one 2 in. (51 mm) nominal diameter copper tube with ¼ in. (19 mm) thickness AB/PVC pipe insulation. One layer of CP645 Wrap Strip, 2 in. (51 mm) wide, was wrapped around the pipe insulation and secured with tape.
 - A max of one 4 in. (102 mm) nominal diameter copper tube.
 - A max of one 6 in. (203 mm) nominal diameter steel pipe, schedule 40, with ½ in. (38 mm) thickness glass fiber pipe insulation.
 - A max of one 2 in. (51 mm) nominal diameter TEK cable.
- Some or all of the above penetrants may be incorporated into the opening. The hourly rating of the system is dependent on the selected penetrant as described in the table below.
- | Penetrant | Hourly Rating |
|-----------|---------------|
| Item #2a | 1½ |
| Item #2b | 2 |
| Item #2c | 1½ |
| Item #2d | ½ |
| Item #2e | 1½ |
| Item #2f | 1 |
- 3. FIRESTOP COMPONENTS.**
- Fill material.** A nominal ¼ in. (6.4 mm) thick by 2 in. (51 mm) wide strip of fill material is wrapped continuously around the circumference of the PVC plastic pipe (Item #2b) and held in place with masking tape. A second layer of nominal ¼ in. (6.4 mm) thick by 2 in. (51 mm) wide strip of fill material is wrapped continuously around the circumference of the PVC plastic pipe (Item #2b) and held in place with masking tape such that the fill materials were double-stacked. A nominal ¼ in. (6.4 mm) thick by 2 in. (51 mm) wide strip of fill material is wrapped continuously around the circumference of the 2 in. (51 mm) nominal diameter copper tube with ¼ in. (19 mm) thickness AB/PVC pipe insulation (Item #2c) and held in place with masking tape. The fill material is installed flush with each side of the wall assembly.
- CP 645 Wrap Strip.**
- FILL MATERIAL.** Foam material is installed within the voids between the penetrants on both sides of the floor or wall assembly to a min depth of 5 in. (127 mm), extending ½ in. (13 mm) above the floor surface or both surfaces of a wall assembly.
- CP620 Firestop Foam.**

For a larger system design picture, visit <http://fcia.org/magazine.htm>

The other exam would test an individual's ability to design a proper firestop system given a certain set of circumstances and a number of listed assemblies from which to choose. In order to pass and become a DRI, an individual had to obtain a score of at least 80% on each exam.

In developing the exam, I knew that it had to be challenging yet fair. The program needed some backbone so I was especially sensitive to the idea that the program not be one that involves simply sending money and receiv-

ing a diploma in the mail. Therefore, the exam would include relatively simple and comprehensive questions to differentiate those who know firestopping and those who think they know firestopping.

Through the years, I've pondered going into teaching (where else can you get so much vacation time?) and often wondered what kind of teacher I'd be. It occurred to me that the only times I really learned was when the teacher was tough on me. I knew the exam would have to be tough and that, if anything, I'd rather the exam be too tough instead of too easy. By the way, I think FM has been successful. According to the informal statistics over five years, less than 70% of the people pass the


exam on their first attempt.

One common question I receive about the FM 4991 Approval of Firestop Contractors' Program is; "What are the exams like?" The answer that they contain true/false or multiple choice questions doesn't offer much. While there are different versions of the exams, I've been diligent about not letting copies of the exam questions circulate so that people do not know the questions ahead of time.

This issue provides an example of a typical FM 4991 DRI Design Selection Exam. I haven't used this example as an actual exam but it's consistent with ones that have been used, although due to space limitations, questions have been simplified. The actual exam contains

five problems similar to these, each with five questions. The exam is closed book and lasts two hours.

If, you feel comfortable after taking the sample exam, consider taking the real FM 4991 DRI Exam and getting your firm FM 4991 Approved.

Designers and specifiers are requiring an FM 4991 Approved Contractor in a large percentage of specifications. FM 4991 is a quality management program where the contractor firm's quality manual is audited by FM Personnel. The DRI manages the Firestop Quality Process at the contractor firm. To learn more about what it takes to become a DRI, or for more info, visit <http://www.fcia.org/fmaprovals.php> 



PREMIER FIRESTOPPING

INSTALLATION SPECIALISTS
COMPLIANCE INSPECTIONS & CONSULTING

*"when it comes to **Life Safety**, we do it right"*

A Division of **FonDelco Inc.**

201-796-7040 • Fax: 201-797-6377

www.premierfirestopping.com

190 Market St. • P.O. Box 8315, Saddle Brook, NJ 07663

A Sample of the FM 4991 DRI Exam

Below is a sample exam to test knowledge of the DRI on selecting a firestop system design to match a condition in the field, or on plans. The answers are shown elsewhere in this publication.

For this problem, use Fire Stop Design 430 (attached), copied from the latest edition of FM Approvals Approval Guide. Read each situation carefully and circle the answer that best answers the question.

Assume the following to be true for each situation described below unless stated otherwise. All concrete is 150 pcf reinforced normal weight concrete. All penetrants are located within the opening as described below and are rigidly supported on both sides. All firestopping, packing and firestopping devices are assumed to have been installed correctly and in the specified thickness and/or quantity. Assume that all ratings are T ratings.

- 1)** The concrete floor is 6 in. thick. The opening is 25 in. x 20 in. The penetrants consist of one nominal 4-in. diameter PVC pipe, one nominal 4-in. diameter copper tube and one nominal 8-in. diameter schedule 40 steel pipe. The penetrants are equally spaced within the opening and meet all annular space and distance requirements between penetrants and the edge of the opening. No insulation has been provided on any of the penetrants. The maximum hourly rating of the assembly is
- a) 1/2 hour
 - b) 1 1/2 hours
 - c) 2 hours
 - d) The installation does not meet the criteria and this design can not be used
 - e) 1 hour

- 2)** The concrete wall is 6 in. thick. The opening is 30 in. x 20 in. The penetrants consist of two nominal 8-in. diameter schedule 40 steel pipes. The penetrants are equally spaced within the opening and meet all annular space and distance requirements between penetrants and the edge of the opening. Glass fiber insulation, 1 1/2 in. thick, has been provided on each pipe. The maximum hourly rating of the assembly is

- a) 1/2 hour
- b) 1 1/2 hours
- c) 2 hours
- d) The installation does not meet the criteria and this design can not be used
- e) 1 hour

- 3)** The concrete wall is 4 1/5 in. thick. The opening is 15 in. x 20 in. The penetrants consist of one nominal 4-in. diameter PVC pipe and one nominal 8-in. diameter schedule 40 steel pipe. The penetrants are equally spaced within the opening and meet all annular space and distance requirements between penetrants and the edge of the opening. Glass fiber insulation, 1 1/2 in. thick, has been provided on the steel pipe. The maximum hourly rating of the assembly is

- a) 1/2 hour
- b) 1 1/2 hours
- c) 2 hours
- d) The installation does not meet the criteria and this design can not be used
- e) 1 hour

- 4)** The concrete floor is 6 in. thick. The opening is 25 in. x 20 in. The penetrants consist of one nominal 4-in. diameter PVC pipe, one nominal 8-in. diameter schedule 40 steel pipe and one 2-in. nominal diameter TEK cable. Glass fiber insulation, 1 1/2 in. thick, has been provided on the steel pipe. The penetrants are equally spaced within the opening. The distance between each penetrant and the edge of the opening is a minimum of 1/2 in.

except that the TEK cable is in point contact with the edge of the opening. The maximum hourly rating of the assembly is

- a) 1/2 hour
- b) 1 1/2 hours
- c) 2 hours
- d) The installation does not meet the criteria and this design can not be used
- e) 1 hour

- 5)** The concrete wall is 5 in. thick. The opening is 30 in. x 20 in. The penetrants meet the criteria of items 2a, 2b and 2c. The penetrants are equally spaced within the opening and meet all annular space and distance requirements between penetrants and the edge of the opening. The maximum hourly rating of the assembly is

- a) 1/2 hour
- b) 1 1/2 hours
- c) 2 hours
- d) The installation does not meet the criteria and this design can not be used
- e) 1 hour

Jeff Gould is a Senior Engineering Specialist at FM Approvals, and was the original author of the FM 4991 Standard working with the FCIA's Accreditation Committee. He can be reached at Jeffrey.gould@fmglobal.com.

Editors Note: The Quality Management Process is making its way into the construction industry using programs like FM 4991. Other industries are developing programs like FM 4991 for effective compartmentation components. FM lead the way with this new trend in construction quality programs by developing FM 4991, Standard for the Approval of Firestop Contractors. Life Safety Digest

Answers to the Sample FM 4991 DRI Exam

1) The answer is d. This design does not meet the design criteria and can not be used for this application. The design specifies that 1 1/2 in. thick glass fiber pipe insulation be provided on the steel pipe. It does not say that the insulation is optional. The problem states that no insulation has been provided. As a result, one of the items in the opening does not meet the criteria. That means the entire assembly does not meet the criteria.

2) The answer is d. This design does not meet the design criteria and cannot be used for this application. At first glance, it might look like this could be rated at 1 1/2 hours. While the description of the pipe and

insulation meet the specifications, the listing specifies that only one such pipe can be part of the assembly. Since two pipes are present, the opening does not meet the criteria. That means the entire assembly does not meet the criteria.

3) The answer is a. This design does meet the criteria. According to the table, when item 2b is present, the assembly is rated at 2 hours. When item 2e is present, the rating is 1 1/2 hours. The rating of the assembly then defaults to the lowest rating of any of the individual items. In this case, its item 2e and the correct answer is 1 1/2 hours.

4) The answer is d. This design does not meet the design criteria and can not be used for this application. The item that is out of

place is the fact that the TEK cable is in contact with the edge of the opening. If you read item 2 closely, a copper tube penetrant can be in point contact with the edge of the opening. All other items must be at least 1/2 in. away from the edge. Since one of the items in the opening does not meet the criteria, the entire assembly does not meet the criteria.

5) The answer is b. This design does meet the criteria. According to the table, when item 2a is present, the assembly is rated at 1 1/2 hours, when item 2b is present, the assembly is rated at 2 hours and when item 2c is present, the assembly is rated at 1 1/2 hours. The rating of the assembly then defaults to the lowest rating of any of the individual items. In this case, its item 2a and item 2c and the correct answer is 1 1/2 hours.



FIRESTOP SOLUTIONS

Division of MEDIGAS® Life Safety Group

Because Life Matters

Providing Firestop Installation & Rated Barrier Reconstruction Services

- FM 4991 Certified Firestop Contractor
- JCAHO, DOH, NFPA, & IBC Code Compliant
- Fire Walls, Smoke Barriers, Hazardous Areas
- Framing/Sheetrock/Masonry Repair
- Fire Damper Testing

CALL TODAY FOR A NO OBLIGATION APPOINTMENT AT YOUR FACILITY!

(800) 437-1591

"Firestop is Only as Good as its Installation"

1655 Sycamore Ave., Bohemia, NY 11716

www.firestopsolutions.com e-mail: info@firestopsolutions.com

A WBE Company

Contractor Qualification Programs- The Big Picture

Contractor quality issues have been a big conversation piece recently. McGraw Hill's Howard Mager moderated a panel on the topic at the CSI Show in 2005. Engineering News Record has had several op-ed pieces on the topic. Contractors, building owner groups, such as the Construction Users Roundtable, have asked for better quality installations of all types of building products.

Since 1999, FCIA has been pursuing the Proper Design, Installation, Inspection and Maintenance (DIIM) of Firestopping and Effective Compartmentation to make our industry better able to protect fire and life safety. We've built standards that are a complete package for the DIIM of Firestopping, and have approached other effective compartmentation trades to also adapt the strategy.

FCIA and its volunteers have worked selflessly and at their own expense to develop standards for:

- **Design** - Specifications for design professionals at <http://www.fcia.org>
- **Installation** - FM 4991, UL Qualified Contractor Program
- **Inspection** - ASTM E 2174 and ASTM E 2393 Inspection Standards
- **Maintenance** - FCIA Manual of Practice resources


These four programs have been cutting edge construction industry initiatives that are spreading amongst the effective compartmentation industries. The swinging and rolling doors and hardware, glazing systems, fire and smoke dampers, fire resistance rated walls and floors industries are building programs that are focused for greatest impact on safety for their industries.

Aedan Gleeson, Gleeson Powers Inc., FCIA Accreditation chairman, stated "The original purpose in 1999 of the Firestop Quality Process concept was to create a synergy of all aspects of the Firestopping industry, which has grown to compartmentation as well. Plus, there are benefits that have come to us as contractors."

Bob Svoboda, president of S&W Waterproofing, Inc., added "Going through the FM 4991 Approval Process has made us look inside at every aspect of our

operation, and made us a better company as a result."

With FM, UL and ASTM, FCIA has brought programs that really have made a difference in this industry and others to the marketplace. With these quantifiable ways to procure firestop systems installations, general contractor, building owner and manager, specifier, architect / engineer, and product manufacturer all benefit for better fire and life safety to those who live, work, learn and play in buildings 24/7/365.

Gleeson concludes, "Collectively, the summation of FCIA's goals for proper firestop systems installation, inspection and maintenance for better effective compartmentation fire and life safety have become bigger than each of us as individuals." 

IRIC Proudly Supplies Qualified,
Local 17 Firestopping
Installation Professionals
for the Chicagoland Region

**Illinois Regional Insulation
Contractors Association**



1515 E. Woodfield Rd., Suite 118
Schaumburg, IL 60173
847-619-9528 Phone
847-619-9556 Fax
www.ircinsulation.org



- Building Insulation
- Firestopping & Smoke Seal
- General Carpentry Services
- Retail Remodeling & Fixturing
- Insulated Metal Panel Construction

www.afunderhill.com

(800) 244-1238

55 North Street Canton, Massachusetts 02021



Professional Training Yields Expert Fireproofers



Fire Rated Walls



A Great Finished Deck



Applying the Proper Thickness

**Call us for information about today's
fireproofing and plastering systems and
the best people to apply them.**



Chicago Plastering Institute
5611 W. 120th Street
Alsip, IL 60803
(708) 371-3100

Life Safety Damper Maintenance and Inspection

By Mark Belke

Fire and smoke dampers are a proven and effective way to protect duct and air-transfer openings in walls, barriers, partitions, corridors and shafts. Since the inception of Underwriters Laboratories (UL) Standard 555 for fire dampers, and Standard 555S for smoke dampers, the damper industry has worked closely with UL and Building Code Authorities to design, manufacture and install the safest, most effective, life safety dampers possible. This article outlines the basic testing, installation, and maintenance requirements for life safety dampers.

Testing

Life safety dampers have evolved from black iron, single-blade, gravity-operated products to the actuated and dynamically rated multi-blade products commonly applied today. During that evolution, the test criteria used to rate life safety dampers has become much more stringent. In addition to the fire endurance and hose stream test that fire dampers have always been required to pass, the 7th edition of UL 555, and the 4th edition of UL 555S, have introduced or increased the pass/fail criteria for several other test requirements.

- Non-actuated fire dampers are required to complete 250 full open/closed cycles.

- Actuated dampers are required to complete 20,000 open/closed cycles.

These cycle tests are conducted

prior to the heated-air operation tests, the dynamic closure tests, and the leakage tests.

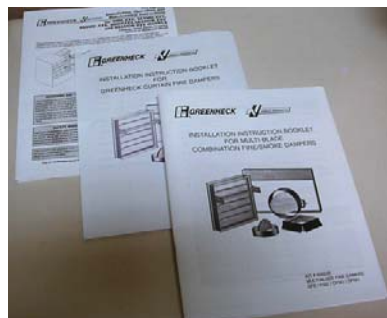
- Minimum airflow ratings of 2,000 fpm through the fully open damper and 4 in. of static pressure across the fully closed damper have also been established to eliminate "marginal" products from being installed.

- In addition, factors of safety of 400 fpm and 0.5-in. static pressure are used during the testing. A damper with the minimum 2,000 fpm and 4-in. static pressure rating is tested at 2,400 fpm and 4.5-in. static pressure.

These changes to UL's test standards have been implemented to keep pace with the changes in modern HVAC systems.

Installation

Even with stringent test requirements and improved manufacturing processes, the proper performance of life safety dampers in the field (as is true with any life safety product) requires following the damper manufacturer's installation instructions. UL requires damper manufacturers to provide installation instructions in each shipping container. Most manufacturers also make their instructions available on line. Although installation requirements vary by damper manufacturer and damper model, the following items are generally covered in the installation instructions - the wall/floor framing details, clearance requirements between the damper and the wall/floor opening, duct-to-damper sleeve connections, and how to



secure the damper to the wall/floor opening.

Inspection and Maintenance

As with any mechanical device, proper maintenance is necessary to ensure that dampers will operate as designed. Inspection and maintenance requirements are defined by

damper manufacturers, actuator manufacturers, and by the National Fire Protection Association (NFPA).

The most important step in making certain that a life safety damper will operate properly is during the building commissioning process. Chapter 19 of NFPA Standard 80, Fire Doors and Other Opening Protectives, states that "after the installation of the life safety damper is completed, an operational test shall be conducted." The standard goes on to state that for combination fire and smoke dampers "the operational test shall be conducted under non-fire HVAC conditions as well as static flow conditions." This also includes fire dampers. The 2006 International Building Code refer-

ences NFPA for maintenance of life safety dampers.

After the initial commissioning process, it's essential to implement a periodic maintenance program for a building's life safety dampers. Chapter 19 of NFPA 80 including fire dampers states, "Each damper shall be tested and inspected one year after installation. The test and inspection frequency shall then be every four years, except in hospitals, where the frequency shall be every six years." Additional testing and documenting criteria for smoke and combination fire and smoke dampers are specified in NFPA Standard 105, Installation of Smoke Door Assemblies and Other Opening Protectives. This standard

identifies almost identical verbiage as NFPA 80.

The damper industry has continued to evolve, providing the safest, most effective products. Products designed to be easily installed and with proper maintenance, provide a long service life while enhancing the compartmentation effectiveness. Keeping up with routine maintenance and documentation allows the system to perform and function as designed and intended. 🔥

Mark Belke is Director, Damper Products of Greenheck Fan Corp. He can be reached at (715) 692-6709 or Mark.belke@greenheck.com.



Gleeson Powers Inc.



Having an FM Approved Contractor helps give you piece of mind that the job will be done right the first time with the highest quality workmanship. We issue a Fire Cert (Firestopping Certificate) when completed with our work helping you to get your Certificate of Occupancy (CO).

The FM 4991 Pedigree...

- Expertise in firestop systems application - helps assure job is done right first time.
- Firestop theory using FCIA Manual of Practice (MOP) - helps assure your specification will be basis of installation.
- Resident "Designated Responsible Individual" (DRI) - helps manage and minimize liability.
- Quality Control Process - helps eliminate conflicts between trades and GC/CM.



- ◆ FIRESTOP SPECIALISTS ◆ SMOKESEAL SPECIALISTS
- ◆ A FULL RANGE OF UL/FM FIRESTOP SYSTEMS ◆ AIR BARRIER
- ◆ WATERPROOFING ◆ CURTAIN WALL INSULATION ◆ BUILDING INSULATION

TEL: **508-553-0800** FAX: **508-553-0999**



41 Dean Ave., P.O. Box 305, Franklin, MA 02038 www.gleesonpowers.com

Code Corner

Industry News

Topics Discussed at Committee Meetings

At recent ICC Code Technology Committee Meetings, three groups met to discuss important issues to Effective Compartmentation - Balanced Fire Protection, Height and Area, and Vertical Fire and Smoke Spread.

In the Balanced Fire Protection Study Group, chairman Brian Meacham discussed the definition of Balanced Fire Protection from other parts of the world, and introduced concepts of community economic losses in addition to fire and life safety as a factor to consider.

During the Height and Area discussions, there was significant discussion about the need for compartmentation in buildings. Additionally, it was brought to the group's attention that the statistical inferences made declaring "safe buildings" were based on performance that included BOTH Effective Compartmentation and sprinklers, plus alarms and detection systems.

The Vertical Fire and Smoke Spread group discussed whether openings made for penetrating items such as pipes, cables, ducts, need to be protected with firestopping or dampers in floors where a transmitting stairway is used where allowed by code. It was pointed out by FCIA code consultant Bill Koffel that, regardless of how big a transmitting stairway connecting two floors is, the rest of the floor was tested as a complete system to ASTM E 119 with fire exposure from one side of the floor, not both. Therefore, leaving the rest of the floor unprotected may cause structural difficulty, as the performance of the floor assemblies is unknown with fire exposure from both sides of the assembly.

Additionally, the group discussed the importance of perimeter fire protection systems, protection of the structure, and definitions. The group will teleconference and meet again in May and June.

ICC 2006/2007 Code Cycle

The Code Development Cycle is coming to a close quickly, with final action hearings in Rochester, NY followed by publication of the changes. Then, the 2007/2008 Cycle starts with Code Development Proposals due Aug. 20.

NFPA Code Development Cycle


NFPA's code development cycle starts again as well,

with July Deadlines for Proposals. For specific info, visit <http://www.nfpa.org>.

National Building Code of Canada

The Canadian Commission on Building and Fire Codes (CCBFC) develops and maintains six of Canada's model construction and fire codes and oversees the work of several standing committees, special purpose committees, and task groups. CCBFC members are selected from across Canada and appointed by the National Research Council (NRC).

A significant revision was published in 2005. The new National Building Code brought a new philosophy of objective based codes. Look for more about building code requirements for Effective Compartmentation from around the world in future Code Corners of Life Safety Digest.




Backer Rod Mfg. Inc.

ULTRA BLOCK®


For Use in Fire Rated Expansion Joints

ULTRA BLOCK® is a pre-engineered, patented, flexible textile fiberglass roll material with a fiber glass matt facing, containing approximately 30% by weight unexpanded vermiculite.

Specific Uses: ULTRA BLOCK®, when used together with an approved sealant, provides a 2-Hour, 3-Hour, or 4-Hour fire rated joint system as designated by design configuration, which is capable of withstanding ±50% expansion and contraction. Most sealant manufacturers in the United States have tested one or more of their sealants in a UL® classified ULTRA BLOCK® system ranging in joint size from 1/2" up to 7". Approved sealant manufacturers include:



Joint Widths	2 HOUR (1850 F)	3 HOUR (1900 F)	4 HOUR (2000 F)
7"	PECORA AC-20 FTR	TREMCO VULKEM 922	
4"	GE PENSIL 300 GE PENSIL 300 SL LYMTAL 880 LYMTAL 980	LYMTAL 880 LYMTAL 980	PECORA AC-20 FTR SONNEBORN NP-1 SONNEBORN NP-2
3"	PECORA AC-20 FTR	PECORA DYNATROL II PECORA AC-20 FTR	
2"	SONNEBORN NP-2 PECORA DYNATRED PECORA DYNAFLEX	LYMTAL 880 LYMTAL 881 LYMTAL 830	SIKA 2 CNS GE PENSIL 300 GE PENSIL 300 SL
3/4"	PECORA 864 PECORA AC-20 FTR PECORA DYNATROL II GE SIL PRUF GE ULTRA GLAZE GE EP 600 GE PENSIL 300 DOW CORNING 790 DOW CORNING 795 SIKA SIKAFLEX 2CNS SIKA SIKAFLEX ISLM TREMCO VULKEM 921 TREMCO VULKEM 922 LYMTAL 880 GB LYMTAL 881 LYMTAL 830 CARLISLE COATINGS OSC 1026 C.R. LAURENCE CRLM64		



www.backerrod.com
4244 N. Broadway
Denver, CO 80216
800-595-2950

Testing & Qualification News

FCIA & UL Lead Total Fire Protection Systems Symposium

The symposium attracted top design and enforcement professionals. Leading speakers from each fire protection industry, including Alarms and Detection, Effective Compartmentation (US Gypsum, Association of Walls and Ceilings Industries), Door and Systems Manufacturers Association [Overhead Door Co.], National Concrete Masonry Association, Greenheck Inc., Fire Rated Glazing Industry, the Door and Hardware Institute, the National Fireproofing Contractors Association, and the Firestop Contractors International Association) and Sprinklers. A tour of UL's Fire Resistance, Detection and Alarm Systems and Full Scale Suppression testing facilities took place as well.

"UL was pleased to present a complete look at all facets of Fire Protection", stated UL's Chris Hasbrook, vice president of Fire and Security.

"FCIA was pleased to work with UL and organize the program promoting all aspects of fire protection that produce safe buildings," stated FCIA past president Don Murphy.

FCIA and Underwriters Laboratories, Inc. partnered to provide education to over 80 AHJ's (Fire Marshals, Fire Inspectors, Fire Educators, Building Officials) and Architects/Specifiers March 15 at UL's Northbrook, Ill. headquarters in a room filled to capacity.

Look for more UL / FCIA Total Fire Protection Solutions Symposiums to take place in many locations worldwide in the future. Want one in your area? Contact bill@fcia.org.

Standard UL 1479 Revision effective September 20, 2007

UL 1479 "Fire Tests of Through-Penetration Firestops" has been revised to incorporate a change to the way that samples are constructed to test certain F-A and F-C series of firestop systems. The F-A and F-C series of systems cover penetrations through concrete floor/ceiling assemblies and wood framed floor/ceiling assemblies, respectively. Previous to the change, the through-penetrants in a floor/ceiling assembly may or may not have been located within a chase wall on the exposed side of the test assembly to represent the penetrant being protected by the wall in which it was encapsulated. The standards change has eliminated use of the chase wall and requires that the penetrant be exposed to the fire during the fire test. The standard change reflects the need to evaluate firestop systems in a configuration in which, while the penetrating item is protected in a wall, it could be exposed to a fire through other wall penetrations of the wall membrane. This change in the standard has an effective date of September 20, 2007.

This standards change may impact the F, T and L Ratings on those F-A and F-C series of firestop systems that incorporate the penetrating item within a chase wall. As of the effective date of September 20, 2007, all firestop systems published in the UL Fire Resistance Directory and Online Certifications Directory must reflect ratings achieved when tested to the revised requirements of the standard. In the interim:

- Firestop manufacturers have the option of retesting systems impacted by the change to determine the appropriate ratings under the revised test conditions. The ratings of some systems currently certified by UL may not change, while for other systems the ratings may change or the systems may need to be redesigned to achieve usable ratings under the revised requirements.

- Firestop contractors need to be aware of design changes that could impact future work. Prior to the effective date, the contractors should contact the firestop material manufacturers to verify the status of any systems that might be impacted by the new requirements. Following the effective date, the UL Online Certifications Directory should be consulted for UL rated systems complying with the revised requirements.

Firestopping Symposium

FCIA member HILTI, Inc. and FCIA "Life Safety Digest" partner McGraw-Hill, co-sponsored by the AIA New York Chapter, assembled a thorough and well-organized Firestopping Symposium in New York on March 27. The program, aimed at highlighting the positive aspects of Firestopping and Compartmentation, was well received by architects, building owners, fire marshals and firestop contractors. FCIA member Don Donnelly, of T.J. Donnelly, Inc.; FCIA code consultant Bill Koffel, of Koffel Associates; fire protection engineering consultant Joe Razza of Rolf Jensen Associates; plus numerous other presenters with John Valiulis of Hilti, Inc. as moderator, covered important topics ranging from engineering judg-

ments, the benefits of using a firestop specialty contractor, to hospital and inspection case studies, plus compartmentation concepts. Our hats are off to Hilti, Inc., for investing in educating about the firestopping and effective compartmentation industry to important groups.

FCIA Members Educate

Firestop Solutions, Inc. teamed up with the Firestop Contractors International Association and the International Firestop Council to educate the owners representative group at the Port Authority of New York & New Jersey about good and bad firestopping. We also know that other FCIA member contractors have spent time educating this important authority, including Premier Firestopping, Inc. and others.

Interestingly, a key topic was engineering judgments. Questions centered on qualifications of the writers of the EJs, and those who are to accept them in the field. More to follow on this important topic.

FCIA member Thermafiber, Inc. presented an excellent Perimeter Fire Containment System program to the Chicago Chapter CSI's Professional Roundtable. Thanks Jim Shriver, for an excellent program to educate about the importance of protecting against fire spread at the perimeter of a building.

FCIA at CSI Show

FCIA's "Compartmentation Symposium" Education Seminar took place at the CSI Convention. The FCIA Booth at the show had many attendees stop by to support firestopping and effective compartmentation.

This program and the FCIA/UL Total Fire Protection Systems Symposium is available on a limited basis to local chapters of CSI, AIA, SCIP as well as building official and fire marshal associations. Contact FCIA for details, bill@fcia.org.

UL offers DRI Testing

UL will offer UL Qualified Contractor Program Designated Responsible Individual Testing at three more locations in 2007. The DRI Testing will take place at Underwriters Laboratories facilities in Brea, Calif. July 26, and Research Triangle Park, NC, September 13. Testing is also offered at the FCIA Firestop Industry Conference & Trade Show November 7-9. Watch <http://www.ul.com> and <http://www.fcia.org> for more information about testing and FCIA Education Sessions to prepare candidates for the test.

FCIA Education and Committee Action Conference

At FCIA's Education and Committee Action Conference, attendees learned about expanding their service for fire and life safety into compartmentation services. "This initiative will help make buildings safer through educated firms and workers at the project site," stated FCIA's president, Mike Dominguez. Additional programs took place on the new FCIA / US DOL Apprenticeship Program, estimating with new software systems, inspection with handheld PDA devices, in addition to programs on fire dampers, fire doors and hardware and firestopping.

Watch <http://www.fcia.org> for info about the upcoming FCIA Firestop Industry Conference and Trade Show in South Florida Nov. 7-9.

FCIA Reports on ICC Final Action Hearings

FCIA testified on several code change items at the ICC Final Action Hearings in Rochester.

FCIA and IFC successfully supported a move to have labeling of all fire barriers, fire partitions and fire walls become which passed and will part of the 2007 supplement to the International Building Code.

FCIA testified in Means of Egress that 70% of the 11,000 high rise buildings in the top 20 cities in the US are located in Chicago, New York, Los Angeles, San Francisco and Honolulu. Since these cities were built based on requirements for BOTH effective compartmentation and sprinkler systems, then the inference that buildings are safe is a result of BOTH sprinklers and effective compartmentation working together. Building Officials and Fire Marshals from throughout the US heard that BOTH should be part of the International Building Code.

FCIA also supported Utah Building Official Gilbert Gonzalez to have either the ASTM E 2174 & ASTM E 2393 Firestop Inspection Standards, or an FM Approved or UL Qualified Contractor become a requirement, which did not pass.

Although not all that FCIA supported passed, the effective compartmentation industries did receive much positive exposure during the code development hearings...and we made some new friends.

Life Safety Digest 2007 Industry Calendar

June 20 to 22

Construction Specifications
Institute CSI Show, Baltimore

July 9 to 13

National Association of State Fire
Marshals, Atlanta

July 21 to 24

BOMA North American
Commercial Real Estate Congress
and the Office Building Show,
New York

July 26

UL Qualified Firestop Contractor
Program DRI Testing, San Jose,
Calif.

Aug. 20

ICC Deadline for receipt of Code
Proposals, 2007/2008 Code Cycle

Aug. 23 to 25

Fire and Rescue International
(IAFC), Atlanta

Sept. 13

UL Qualified Firestop Contractor
Program DRI Testing, Research
Triangle Park, N.C.

Sept. 17

International Firestop Council,
Cleveland

Oct. 14 to 19

Society of Fire Protection Engineers
Professional Development Conference
and Exposition, Las Vegas

Oct. 15 to 20

Door and Hardware Institute Conference
& Exposition, Nashville, Tenn.

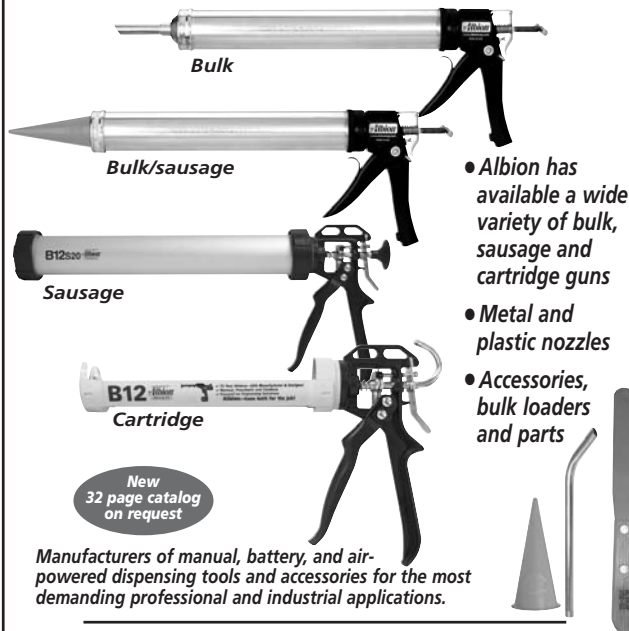
Oct. 21 to 25

SMACNA Annual Convention,
Phoenix

Nov. 7 to 9

FCIA Firestop Industry Conference &
Trade Show, South Florida

**Efficient Design and Quality Construction
makes Albion the only choice for
Professional Firestop Tools.**



Manufacturers of manual, battery, and air-powered dispensing tools and accessories for the most demanding professional and industrial applications.

Albion
DISPENSING SOLUTIONS
www.albioneng.com

ALBION Engineering Co.
1250 N. Church Street
Moorestown, NJ 08057-1102
856-235-6688 FAX: 800-841-7132
E-MAIL: service@albioneng.com

Dalton Maintenance, Inc.

“Serving Central and Southwest Ohio”

Quality Installers of:

- Firestopping
- Joint Sealants
- Waterproofing
- Expansion Joints
- Water Repellents



Contact Us Today At:

(937) 849-9055 - Phone

(937) 849-6134 - Fax

ekeeton@daltonmaintenance.com - Email

Since 1977

Standing in harm's way since 1936.



Krieger's blast, pressure and bullet resistant doors and windows have been protecting people and property for 70 years. Certified in accordance with UL 10C, UBC 7-2 and UBC 7-4, our metal doors are fire rated up to 3 hours and wood doors are fire rated up to 45 minutes. Doors are available in 250°, 450° and 650° temperature rise, up to 3 hours. Also available are smoke labels up to 20 minutes, fire rated glass and glazing materials.

Visit KriegerProducts.com or call 1-800-251-2754

KRIEGER[™]
SPECIALTY PRODUCTS

Advancing the Possibilities



Firestop your costs before it burns up your profits!

When it comes to firestopping wall and floor penetrations, general contractors and owners call the firestopping experts. If you're looking to firestop the holes in your project budget, **The On Center ProfitBuilding™ Suite** is the answer.

The On Center ProfitBuilding™ Suite of takeoff, estimating, and production tracking software offers innovative and practical solutions for construction industry professionals working across a broad range of trades. All of the software in this suite was designed by industry professionals who wanted to create easy-to-use applications designed specifically with the estimator in mind. With this suite of software, you will be able to create estimates faster, with greater accuracy than ever before, and then keep track of labor and production with a precision never before possible.

***Profitability is expected.
How will you achieve it?***

Contact us today at 866.627.6246, or visit us on the Web at www.oncenter.com to learn more about the On Center ProfitBuilding Suite, which includes: On-Screen Takeoff®, Quick Bid, and Digital Production Control™.



On Center
SOFTWARE

1400 Woodloch Forest Dr., Suite 400
The Woodlands, TX 77380
866.627.6246
www.oncenter.com