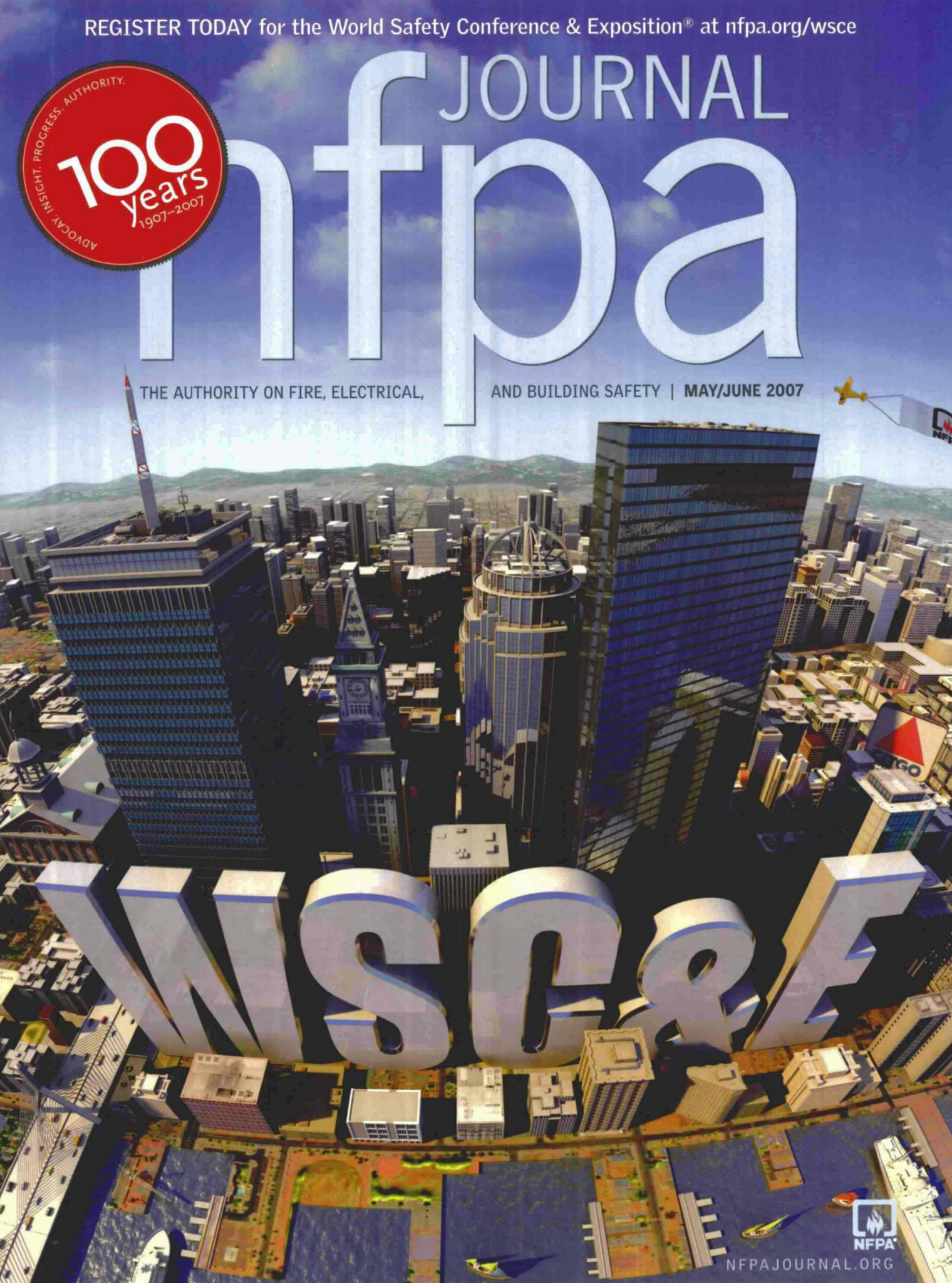
ADVOCAY. INSIGHT. PROGRESS. AUTHORITY.
100 years 1907–2007

nfpa JOURNAL

THE AUTHORITY ON FIRE, ELECTRICAL, AND BUILDING SAFETY | MAY/JUNE 2007



NFPA
NFPAJOURNAL.ORG

FIRE SUPPRESSION THAT WILL MAKE OTHER SUSTAINABLE BUILDINGS GREEN ... WITH ENVY.

ANSUL. INERGEN. CLEAN-AGENT FIRE SUPPRESSION. SAFE FOR PEOPLE, PROPERTY AND OUR PLANET.

If you're an architect, engineer or builder dedicated to sustainable design, INERGEN Clean Agent from ANSUL is the fire protection for you. An inert gas mixture, INERGEN puts out fires by lowering the amount of oxygen to levels below that needed for combustion yet remains safe for humans. And because it is inert, made entirely of natural argon, nitrogen and CO_2, INERGEN does its job without harming the environment. ZERO ozone depletion, ZERO global warning potential and ZERO atmospheric lifetime. For those who see green, INERGEN systems are the answer in fire protection.

We're so confident of its performance, we've given INERGEN our Evergreen Discharge Warranty as well as our Environmental Warranty. Ask for details.

NFPA 339 BOOTH

www.ansulinfo.com/nfpaj3

ANSUL
Innovative Fire Solutions

tyco

TELL FIRE WHERE IT CAN GO.

(AND WHERE IT CAN'T)

Fire-rated glass has one main job: keeping fire in its place. You want to contain it, to prevent the flames and deadly smoke from spreading. So turn to FireLite® from Technical Glass Products. Architects and glaziers around the world depend on the FireLite name for:

- Clear, wireless ceramic
- Fire ratings up to 3 hours
- High impact safety ratings
- Fire protection on both sides of the glass
- Complete code compliance, including the required hose stream test

The most trusted name in the industry, Firelite is the #1 alternative to traditional wired glass. You can count on TGP for all of your fire-rated glazing needs.

fireglass.com
800.426.0279

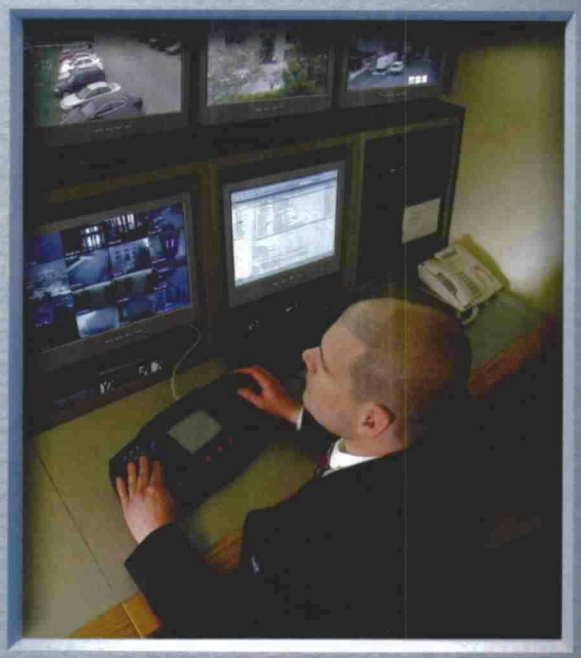
FireLite® Family of Products

FireLite® FireLite® IGU FireLite® NT FireLite Plus®

TGP FIRE RATED one source. many solutions.®

Circle 067 on card or visit www.nfpa.org/product-info-journal

LIFE SAFETY, MEET SECURITY. SECURITY, MEET COMMUNICATIONS. COMMUNICATIONS, MEET LIFE SAFETY.



Want to get your communications, security and life-safety systems to work like one system? Let SimplexGrinnell's experienced specialists introduce you to true integration. We're a Microsoft® Certified Partner with the proven ability to deliver networked, enterprise-level technology solutions that integrate access control, video over IP, fire alarm voice systems and other critical life-safety applications. The results are real-time emergency response, more precise emergency announcements and better post-incident recording. Meet us at www.simplexgrinnell.com/besafe or 1-800-746-7539.

SimplexGrinnell BE SAFE.
Total Support Services

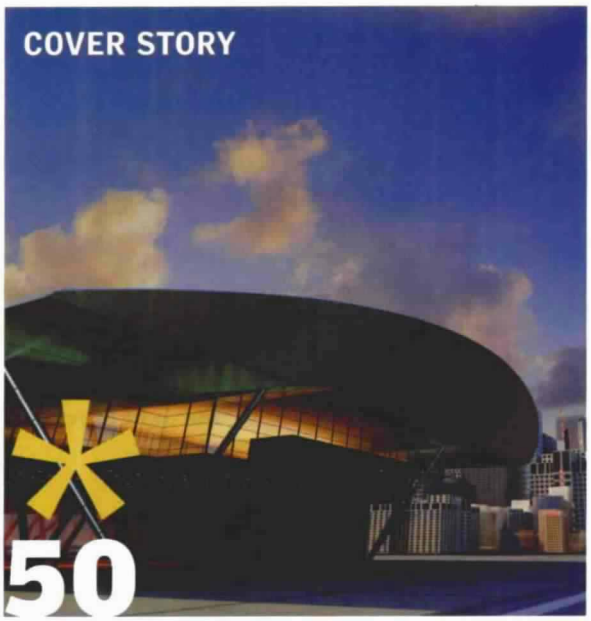
SimplexGrinnell® is a business unit of Tyco Fire & Security.

JOURNAL nfpa
ADVOCACY. INSIGHT. PROGRESS. AUTHORITY. 100 years 1907–2007

INSIDE VOLUME 101, NUMBER 3

MAY/JUN 07

Features



The 2007 WSC&E is comprised of more than 150 education sessions, a series of one- and two-day pre-conference seminars, and a three-day exposition. To register, visit www.nfpa.org/wsce.

"2007 WSC&E Comes to Boston," page 50

ONLINE EXCLUSIVES
- Kidde Fire Fighting School
- Protecting Restaurants
- Fire Department Needs Assessment

Cover Illustration for *NFPA Journal* by Jon Watson

46

The installation process can be improved by using qualified technicians to install and program new fire alarm systems.

Columns

Departments

Membership

National Fire Protection Association NFPA

nfpa JOURNAL

Vice President of Communications
Lorraine Carli

Publisher
Kathleen M. Robinson

Executive Editor
John Nicholson
(617) 984-7567
jnicholson@nfpa.org

Art Director
David Yount, Jr.

Production Manager
Adrienne M. Albrecht

Editorial Secretary
Liz Byrne

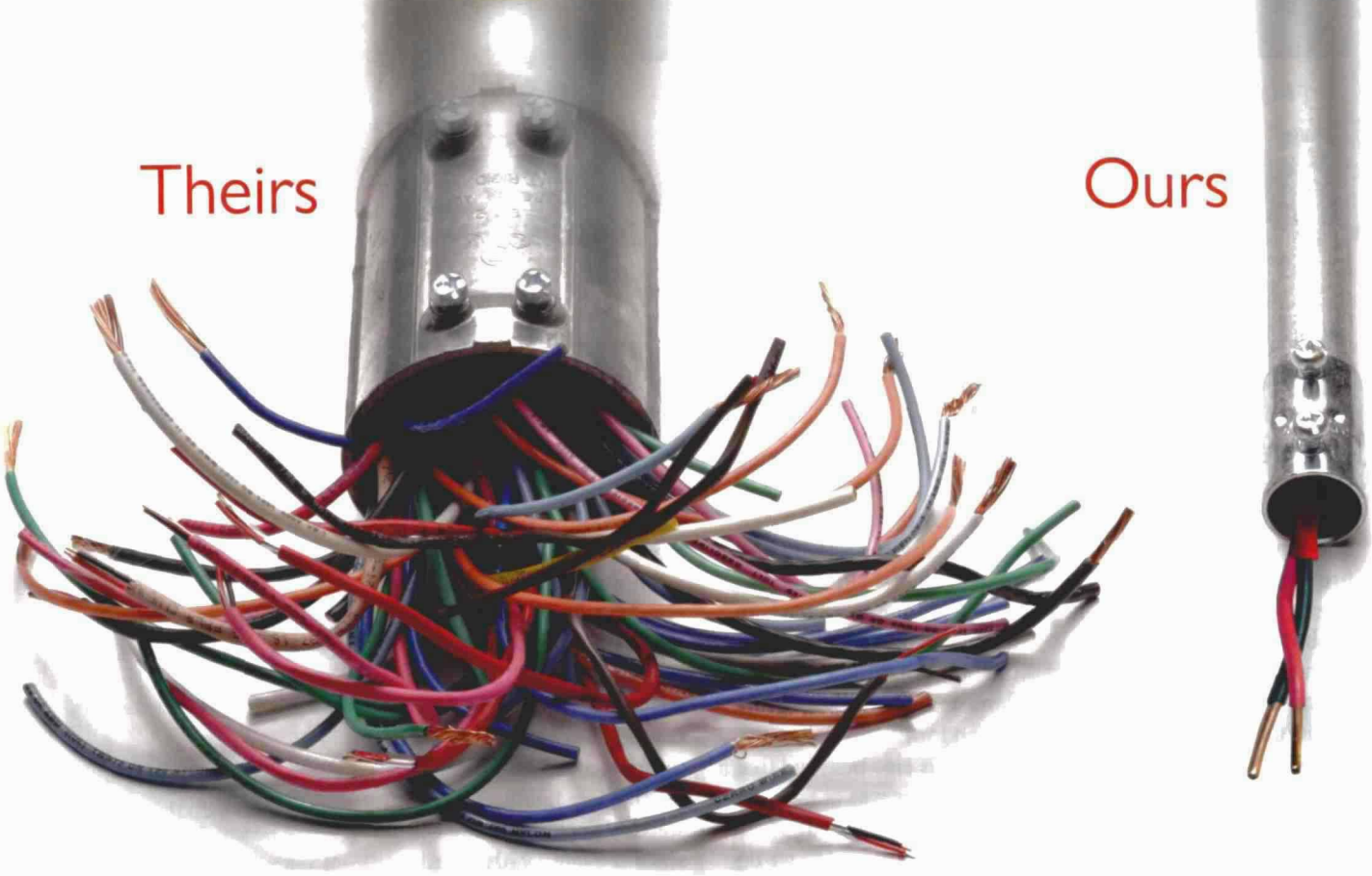
Advertising Sales Director
Russell Thibeault
(617) 984-7520
rthibeault@nfpa.org

Advertising Operations Manager
Dorinda Fergason

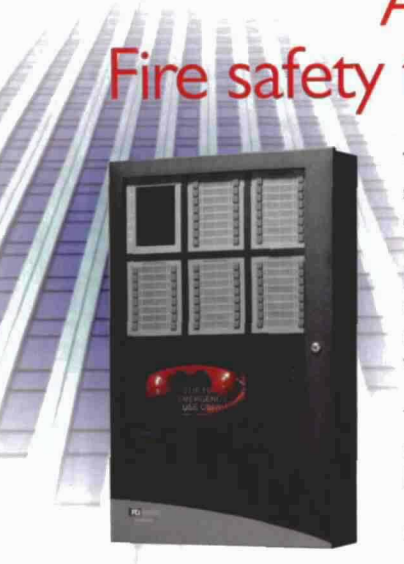
Advertising Systems Manager
Susan Richard

Online Advertising
Lynne Grant

Marketing/Periodicals Circulation Manager
Susan McArdle



Announcing the E3 Series.™
Fire safety technology so advanced, it's simple.



The E3 Series from Gamewell-FCI is the most sophisticated, customizable and cost-effective fire safety system available. Built around innovative, proven technology, it represents the future of fire alarm control, assisted voice evacuation, and mass notification.

Designed using a "building block" approach, the E3 Series is a full function fire alarm system easily configured into a distributed network with advanced voice capability. Only the E3 Series has something more: the added benefit of broadband technology, allowing complete system integration over just two wires or fiber optic cables.

The modular, two conductor design provides a simpler, faster, and more economical "right-sized" solution for virtually any new or existing building, facility or campus. The bottom line? Ours gives the best value in fire safety over the entire life of your building. Theirs doesn't.

Cutting edge technology backed by an industry-leading tradition of excellence.

Gamewell FCI FIRE CONTROL INSTRUMENTS

by Honeywell

Gamewell-FCI • 12 Clintonville Road, Northford, CT 06472 • 203-484-7161 • www.gamewell-fci.com

FROM NFPA PRESIDENT **JAMES M. SHANNON**

first word

Attacking the fire problem

ONE NEW YORK Fire Department official remarked, "Everything that could possibly damage this fire operation occurred. If one of them was by itself, it probably would not have been this tragic."

The images and news accounts of the deadly fire in a Bronx neighborhood in early March describe an event that is becoming all too familiar: an outwardly routine residential fire turning deadly. Eight children and one adult died in the fire. A ninth child died a few days after the fire from the effects of smoke inhalation.

As an organization, we develop and present educational programs with life-saving messages that focus on those at risk yet in this instance many of those basic messages were not followed.

Here are some of the things that went wrong: there were no batteries in the building's two smoke alarms, three of the adults living in the home tried to douse the flames themselves and another called her husband before dialing 911, which caused a delay in the fire department's response. One woman tossed children from a second-floor window to try to save them, and then jumped herself.

The three-story house lacked a fire escape and had only one stairwell, giving residents no way out once those steps were blocked by flames. Although not required by code, there were no sprinklers. Officials said an open door or window in the back allowed wind into the house, fanning the flames. The blaze was too strong for the firefighters to go in. It is also believed that a space heater was at fault.

Again we found ourselves asking what more can we do to prevent things like this from happening. Members of our public education division went to New York City to meet with the FDNY. Like NFPA, they aggressively target the high-risk populations with basic life-saving messages, so this tragedy hit them hard as it did the entire city.

People should be safest in their own homes but when it comes to fire, home is the most dangerous place. According to our most recent statistics, U.S. fire departments responded to 381,000 home structure fires in 2005. These fires caused 13,300 civilian injuries, 3,030 civilian deaths, and $6.7 billion in direct damage.

In addition, 82 percent of all civilian fire deaths resulted from home structure fires. Furthermore, most fatal fires kill one or two people. In 2005, 13 home fires killed five or more people. These 13 fires resulted in 80 deaths. Seventy-four percent of reported home fire deaths result from fires in homes with no smoke alarms or no working smoke alarms.

Those numbers are down considerably from 1977 when U.S. fire departments responded to 723,500 home structure fires. Those fires caused 21,640 civilian injuries, and 5,865 civilian deaths. Fire fatalities have steadily declined in the U.S. since the late 1970s, thanks partly to strong public education initiatives, improved building codes requiring safety measures such as sprinkler systems.

This heartbreaking fire reinforces the importance of our association's ongoing goal of safety beyond the fire codes. Our intent is to influence human and institutional behavior through public education, and influence public policy, regulation and legislation through advocacy that results in reduced fire, electrical, and building deaths, injuries, and property loss.

More progress must be made. We are working with major fire departments to identify and define the causes of fire deaths and injuries among high-risk populations and the unique challenges associated with reducing/eliminating those deaths and injuries. We have

Continued on page 158

Photograph by Stan Rowin

We do more for your project than code consulting.

Much more.

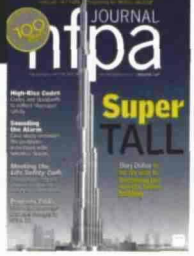
- Master Planning
- Fire/Smoke/Egress Modeling
- Performance-Based Design
- Fire and Security System Design
- Mass Notification Planning
- Accessibility for the Disabled
- Emergency Response Planning
- Construction and Project Management
- Fire Investigation

Rolf Jensen & Associates, Inc. Providing intelligent, integrated protection solutions for our clients on leading commercial, institutional and industrial projects throughout the world.

RJA®
ROLF JENSEN & ASSOCIATES, INC.
FIRE PROTECTION CONSULTANTS
rjainc.com
888-831-4RJA

Atlanta • Baltimore • Boston • Chicago • Dallas • Denver • Houston • Las Vegas • Los Angeles • Macau • New York • Orlando • Phoenix • Raleigh • San Diego • San Francisco • Shanghai • Washington, D.C.

mail call



Real world situations

As a recently retired deputy chief in FDNY with my entire 42-year career working in the field, I would like to comment on the article "(Inside) Propane Tanks" in the March/April 2007 issue of *NFPA Journal®*. During my career I have responded to thousands of incidents of all types.

I was constantly frustrated by tragedies that have occurred in code compliant structures and situations. It was my feeling that the writers of the codes, as well as the architects and engineers who design and build buildings were divorced from the realities of the real world fire situations, especially the problems faced by firefighters. This article is a further example of the preceeding.

One word never mentioned in the article was "BLEVE" a termed coined by NFPA Fire Gases Specialist Wilbur Walls many years ago. The article states that "The burst resulted in severe heater and room damage."

Was this due to a BLEVE? What would have happened to firefighters in the room if this burst occurred while they were in the room fighting the fire?

The article mentions many times that the composite cylinders released gas under fire situations." The released gas was consumed in the fire." It goes on to state "The cylinder was emptied approximately 10-15 minutes after the maximum pressure was reached."

What would happen if the fire is extinguished by firefighters or a sprinkler system before all the contents of the tank were released and burned?

Would the remaining contents of the tank be released and remain unburned? Could these unburned gases reach their explosive range of approximately 2 percent to 9 percent and be ignited by the numerous ignition sources in a room where a major fire has been just knocked down and cause an expolsion, again injuring firefighters?

How were firefighters and firefighting taken into account in these tests? Or are firefighters expendable and just

IP That Pays for Itself

Fire-Lite's NEW Internet Fire Communicator

- Eliminates the cost of one phone line and pays for itself in just a few months
- Supervises every 90 seconds, as opposed to once every 24 hours
- Uses your existing internet or intranet connection
- Uses industry standard Contact-ID
- Compatible with Fire-Lite's leading line of fire products

FIRE-LITE® ALARMS
by Honeywell

For more information on Fire-Lite's new Internet Fire Communicator (IPDACT), visit www.firelite.com/ipdact.

Visit us at NFPA Booth # 723

Fire-Lite • One Firelite Place, Northford, CT 06472 • 203-484-7161 • www.firelite.com

an afterthought?

Because these composite cylinders are going to be used indoors, wouldn't it be safer to butane instead of propane. There would be much less of a chance of a BLEVE with butane with a boiling point of 15° F. than propane with a B.P of –51° F?

TED GOLDFARB
Deputy Chief (retired) FDNY
Staten Island, NY

No conflicts

I was surprised to read Chip Carson's column on "Overcoming Code Misunderstandings" in the March/April issue. He brings out some very good points; however, the differences between NFPA 1 and NFPA 101 are not conflicts. The documents have different scopes and purposes, which result in different provisions.

NFPA 1 has property protection as one of its primary goals, which is not included within the scope and purpose of the *Life Safety Code*. I do not believe there are conflicts between the codes or that one is more stringent than the other. The example given in the article for portable fire extinguishers is a good example of NFPA 1 addressing property protection and the *Life Safety Code* emphasizing evacuation as the priority.

Also, there are more than "several" states that have adopted NFPA 1; 20 states have adopted it.

NAME WITHHELD UPON REQUEST

Seasoned professionals

I will not defend either of the two security standards already published (NFPA 730 and 731). They speak for themselves but I am moved to respond to Mr. Daly's questions regarding the number of "seasoned public or private security sector professionals" on the committee (*NFPA Journal*, "MailCall", January/February 2007).

I fairly regard myself as seasoned having started my career in private sector security in 1974. I joined ASIS in 1977, was awarded my CPP in 1984. I also hold a Fellowship of the UK Security Institute and have two Master's degrees, one in Security Management, not to mention earned qualifications in fire engineering.

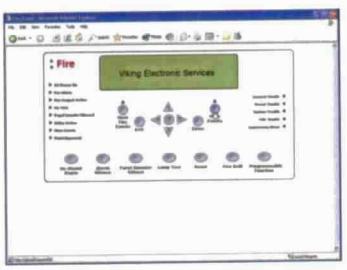
Mr. Daly's suggestion that the work on the standards should have been undertaken with ASIS overlooks the facts that such approaches were made and that ASIS has traditionally set its face against the development of such standards. We have had comparable standards in the

Everyone talks about the future.

Viking Electronic Services delivers it. Now.

- Secure, always-available system reporting, remote configuration, remote service scheduling, remote testing and inspections
- Easy to interpret reports in graphical format quickly display system status and messages
- Remote collaboration on bidding, scheduling and system configuration, anytime, anywhere

- Especially suited for medium- to large-scale educational, industrial and residential campuses, whether new or retrofits
- With networked releasing, suitable for pre-action, FM200 and deluge systems
- IP-based, plug and play network holds up to 127 panels on common CAT5 cable
- Remotely program any size system as a single system
- Voice Evacuation systems to fit any application, meets or exceeds DOD Minimum Anti-Terrorism Standards for Buildings



- Remote, fully functional display of the fire panel on a computer terminal – especially suited for guard stations, security kiosks, remote security checkpoints. Visit us at Booth 501 at the World Safety Conference & Exposition or go to our website at www.vikingservnet.com for more information about Virtual Panel!

Going to the World Safety Conference & Exposition in Boston?
See for yourself why Viking Electronic Services delivers the future now. Visit us at Booth 501, June 3-7! Or go to www.vikingsernet.com for more information.

VIKING® Viking Electronic Services

800.274.9509
info@vikingservnet.com

Microsoft CERTIFIED

Circle 055 on card or visit www.nfpa.org/product-info-journal

UK for more than 25 years and there has not been the "flood of litigation" feared by some ASIS members.

Mr. Daly should not take comfort from the idea that the standards will be ignored. I am pleased to say that to my certain knowledge they are already in widespread use and I use them when undertaking reviews of security in a range of occupancies - including hotels—in many parts of the world when undertaking insurance reviews and as an expert witness in litigation.

STEWART KIDD, MA, MSC, FIFIREE, FSYI, CPP

Inappropriate photo

I am disappointed that you would select a photo to accompany your story on vehicle fires. The image shows firefighters not completely protected with personal protective equipment as recommended by NFPA standards and training materials. Why would the NFPA, which so strongly promotes firefighter safety and the use of personal protective equipment in the "hazard zone", not select a photo that illustrates what the organization preaches? Smoke from burning cars is hazardous to your health, vehicle fires produce a number of safety hazards and most progressive fire departments have SOPs that would require full protective clothing AND SCBA use during the operations pictured.

RICH MAHANEY
Director of Emergency Management
Linn County, Cedar Rapids, Iowa

Proper installation

On Sunday, March 11, 2007 at firefighters from Ferndale, Michigan responded to a report of a kitchen fire at a hospital. Upon arrival, firefighters discovered that the fire had been extinguished by the wet-chemical fire suppression system protecting the kitchen hood and appliances. The fire had originated inside cabinetry housing the burners for the gas-fired steam kettles.

Staff quickly activated the fire suppression system manually and evacuated the kitchen and dining room. Damage was limited to the steam kettle unit and electric control panel of the adjacent oven. Appliance damages are estimated at approximately $3,000.

The wet-chemical system had been recently updated at the request of the State Fire Marshal's Office to include the kitchen area where the steam kettles and pizza ovens were located.

Although questioned at first, the

Any fire. Any building. Anytime now and in the future. A full range of Intelligent Fire Detection Systems from Siemens.

There is no building too small, too large or too unique for a Siemens Intelligent Fire Detection System or Special Hazard Protection System. Now and in the future, Siemens' wide range of fire detection systems offer the greatest possible protection and flexibility. Siemens offers systems from the MXL Series, the industry's most popular application specific system; the new FireFinder XLS Series with the world's largest display screen; or the FireSeeker FS-250, our newest, intelligent addressable system for small to midsize facilities. Siemens also provides Special Hazard Systems as part of our integrated fire protection solutions.

With Siemens' wide range of proven Intelligent Fire Detection Systems, you can be confident that you're making an intelligent decision. For details, visit Siemens Building Technologies at sbt.siemens.com/fis.

Hospital's Administration made the necessary improvements.

Proper installation of the system, continual training of hospital staff and the staff's quick actions proved to be very successful in saving lives and limiting damages.

BRAIN BATTEN
Fire Marshal
City of Ferndale Fire Department
Ferndale, MI

Insightful material

Milosh Puchovsky's commentary on high-rise building code and *Life Safety Code* changes (March/April 2007, *NFPA Journal*) was welcome information. He was concise and thorough in explaining changes and ideas being talked about. It is useful to know the intent of the codes and possible beneficial building construction, which could help in an emergency. Thanks.

WILLIAM FISHER
NFPA member

ERRATA

The article titled "LNG safety and protecting a facility: Striving to be the safest in industry" in the January/February 2007 issue of *NFPA Journal* contained an error. The article states "Fixed storage tanks can be subject to boiling liquid expanding vapor explosion, but the probability of this event occurring is low."

LNG containers are not susceptible to boiling liquid expanding vapor explosion. The vessels include multiple containers with insulation or a vacuum between the layers to prevent heat transfer into the LNG liquid. The multiple layers will prevent flame impingement directly on to the pressure vessel, which is required to initiate a boiling liquid expanding vapor explosion. Also, the low pressures associated with LNG storage would not lead to the damage typically associated with a boiling liquid expanding vapor explosion. The original statement will lead to the false assumption that a major incident at an LNG facility due to a boiling liquid expanding vapor explosion is feasible and it is definitely not feasible.

Comments?

We welcome your letters, comments, and story suggestions. Please send your information to:
NFPA Journal, 1 Batterymarch Park, Quincy, MA 02269-9101
email: jnicholson@nfpa.org

VICTAULIC • FIRE PROTECTION SYSTEMS

INNOVATION

VALVES & DEVICES

GROOVED COUPLINGS

FITTINGS & HOLE CUT

SPRINKLERS

PIPE PREPARATION

Victaulic Fire Protection products and services

More than 80 years of commitment to technology, service and quality.

All of our research and product development is built upon what we learn from you, our valued customers. Our goal is to provide products that surpass performance expectations and deliver value, quality, safety and dependability.

www.victaulic.com
1.800.PICK-VIC

NORTH AMERICA • UNITED KINGDOM • EUROPE
MIDDLE EAST • LATIN AMERICA • ASIA PACIFIC

Victaulic®
Piping. Systems. Solutions.

Their safety depends on your decisions.

Depend on UL for the most comprehensive and up-to-date education and certification information.

We know that keeping current with the constantly changing regulatory landscape is a critical part of your job. That's why among certification organizations UL is the leading authority in providing continuous training and information on current fire code requirements and future industry trends. Our seminars and presentations cover the latest issues most relevant to your work, such as firestopping, fire rated designs and fire pumps. And with our robust compliance tools, including the Online Certifications Directory, Product Directory CD and code correlation databases, you can easily verify UL Listings and product code compliance at your convenience. When it comes to dedicated, knowledgeable and readily available regulatory support, UL sets the standard.

To learn more about our regulatory support services, call 1-800-595-9844, e-mail ulregulatoryservices@us.ul.com or visit www.ul.com/regulators.

the standard in safety

Underwriters Laboratories

Oregon will require fire-safe cigarettes

COALITION for FIRE-SAFE CIGARETTES

The time is now.™

OREGON GOVERNOR TED KULONGOSKI took an important step in promoting public safety by signing legislation that will mandate the sale of only fire-safe cigarettes throughout the state. These cigarettes are less likely to ignite clothing, bedding, or other material if left unattended.

"By requiring the sale of fire-safe cigarettes, Oregon will provide its citizens with a proven, effective way to protect against cigarette-ignited fires," said James M. Shannon, president of the National Fire Protection Association (NFPA), which is coordinating the nationwide Coalition for Fire-Safe Cigarettes. "We applaud the legislature and Governor Kulongoski for approving and signing this legislation so that the people of Oregon can benefit from a higher level of safety."

Between 700 and 900 people die each year in the U.S. as the result of fires caused by cigarettes according to NFPA. One quarter of those people killed – often including children and the elderly – are not the smoker. According to the Oregon state fire marshal's office, 18 people have been killed in the last two years in the state due to cigarette-ignited fires. Since 1979, a total of 147 Oregonians have lost their lives due to these types of fires.

About 30 percent of U.S. residents live in states where fire-safe cigarette laws have passed or are in effect. Oregon is the ninth state to require the sale of such cigarettes. It is the third – with Kentucky and Utah – to approve a mandate this year. Two states – New Jersey and Maryland – have bills awaiting gubernatorial signatures. Other states with fire-safe cigarette laws are New York, Vermont, California, Illinois, New Hampshire, and Massachusetts. Several other U.S. states are considering such legislation. Fire-safe cigarettes are mandated throughout all of Canada.

The Coalition for Fire-Safe Cigarettes, officially launched in March 2006, includes fire service members; medical and public health practitioners; advocates for consumers, the elderly, and people with disabilities; and others. Coalition members are committed to saving lives and preventing injuries by reducing the threat of cigarette-ignited fires. The Coalition has asked tobacco companies to start selling fire-safe cigarettes nationwide and is working to see fire-safe cigarette legislation passed in every state. For more information, please visit the Coalition's Web site.

Study Could Change Face of Fire Safety

The Fire Protection Research Foundation (**FPRF**) and Underwriters Laboratories (UL) announced the completion of a study that enhances the fire safety community's understanding of modern fire hazards and may eventually lead to changes in how people are kept safer from fire.

The $700,000 joint study systematically investigated the characteristics of smoke and how materials used in modern residential settings have changed the way fires behave in homes. The year-long Smoke Characterization Project studied 27 synthetic and natural materials and various combinations of materials now more commonly found in homes.

Until recently, these different smoke characteristics couldn't be studied in such detail. In developing the Smoke Characterization Project, UL invested more than $500,000 to conduct the study and to secure the latest scientific measurement equipment. With this advanced analytical ability, UL's fire science experts were able to investigate the chemical and physical properties of smoke at a new level of sophistication.

The study will also help material scientists better understand how materials decompose in residential fires and may lead to the development of safer materials in the home.

The Smoke Characterization Project followed a 2004 study conducted by the National Institute of Standards and Technology (NIST) that indicated fires in modern homes smolder longer, then burn hotter and faster than what was typical when smoke alarms were first introduced.

NFPA launches new game to teach children emergency preparedness

NFPA HAS LAUNCHED a new *Sparky the Fire Dog®* game to help children learn about emergency preparedness. The game, "Look and Learn," is now available free online. It stresses the importance of being prepared for an emergency by teaching children about items that should be included in an emergency supplies kit.

Each year natural disasters disrupt the lives of hundreds of thousands of children and their families. NFPA developed *Risk Watch®*: Natural Disasters to help children and their families deal with disasters before, during and after the event. Sparky's® new game is the latest addition to support this effort and is available by visiting NFPA's *Risk Watch®* Web site and entering the "Kids Only" section of the site.

"Everyone runs the risk of experiencing a natural disaster and that includes children," said Amy LeBeau, NFPA's communications manager of public education. "Sparky's new game is a great way for parents and teachers to educate children about emergency preparedness with a fun interactive lesson."

New Firewise Workshop Program Underway For Forest Professionals

AS HUNDREDS of homes in the U.S. continue to be lost to wildfire each year, the national Firewise Communities program is launching a series of workshops to teach planners, landscapers, and fire and forestry professionals how to identify the risks and—more importantly—help residents and communities become safer from the threat of wildfire.

The 2007 workshop series, "Assessing Wildfire Hazards in the Home Ignition Zone," will address ways homes and landscapes can be modified to become more resistant to wildfire. The course is based on decades of fire science research into how homes ignite during wildfires. The Firewise Communities program designed the concepts of the "home ignition zone"—the home and its surroundings within 100 to 200 feet—based on models, experiments, and case studies by USDA Forest Service research scientist Jack Cohen.

For more information about the course and to register online, please visit www.firewise.org/hizworkshop.

NFPA STANDARDS ADOPTED BY U.S. DEPARTMENT OF HOMELAND SECURITY

THE U.S DEPARTMENT OF HOMELAND SECURITY (DHS) adopted eight NFPA standards for first responder personal protective equipment. Three of the eight documents were adopted for the first time by DHS and the remaining five were re-adoptions of the latest editions of standards currently being recognized by DHS. The requirements set by the documents aid state and local procurement officials in selecting the best protective equipment available.

The standards will better protect first responders in emergencies involving chemical, biological and other hazards. They will also provide manufacturers with the necessary guidelines for designing, testing and certifying this equipment.

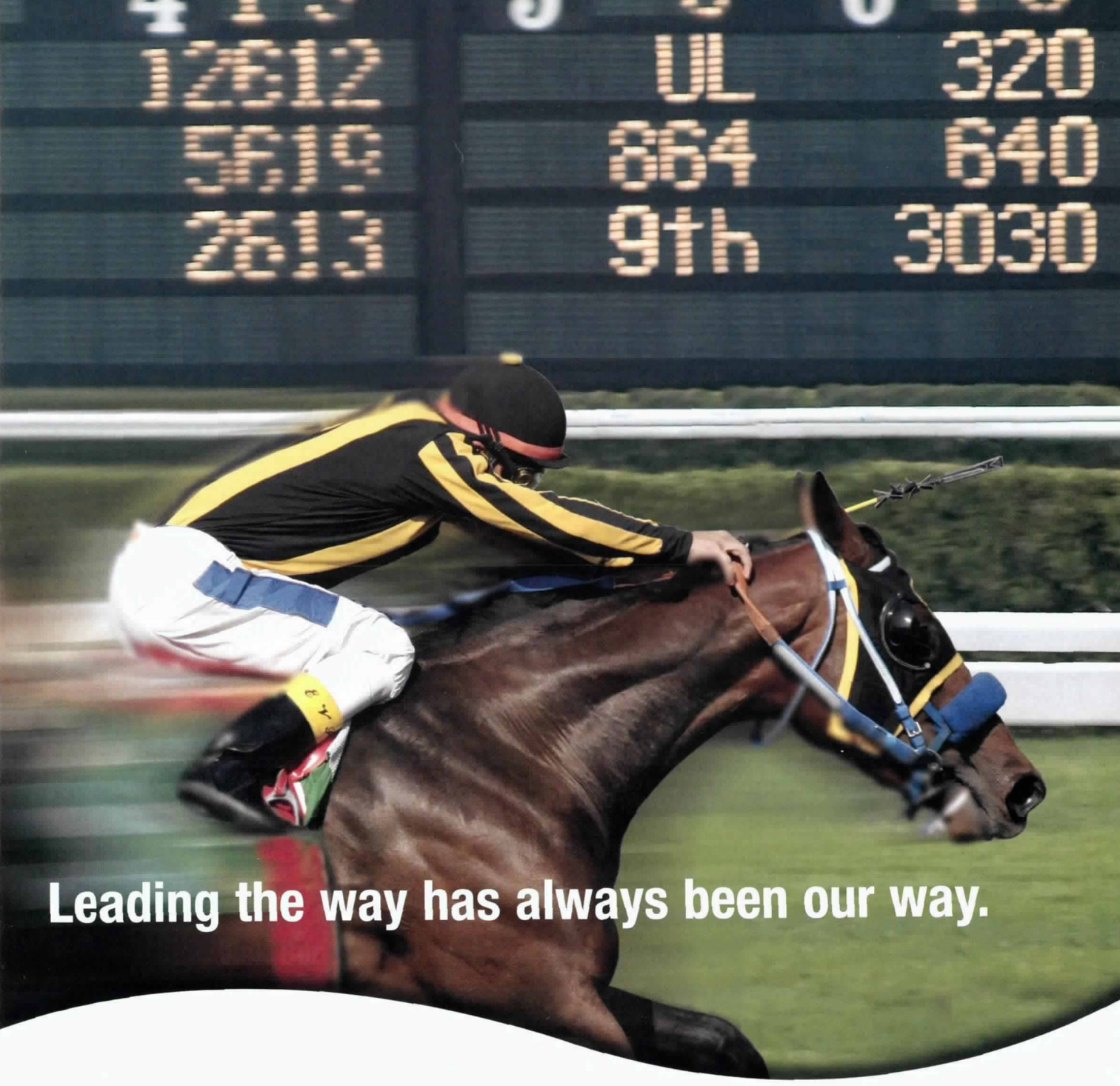
"NFPA has long been a strong advocate for equipment and protective clothing standards for first responders and continues to lead efforts in this area," said James M. Shannon, NFPA's president. "These latest adoptions by DHS will go a long way in ensuring the safety of emergency personnel."

The three newly adopted standards are: NFPA 1982, *Personal Alert Safety Systems* (PASS); NFPA 2112, *Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire*, and NFPA 2113, *Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire.*

The five standards re-adopted to the current editions are: NFPA 1951, *Protective Ensembles for Technical Rescue Operations*; NFPA 1971, *Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*; NFPA 1981, *Open-Circuit Self-Contained Breathing Apparatus* (SCBA) *for Emergency Services*; NFPA 1991, *Vapor-Protective Ensembles for Hazardous Materials Emergencies*, and NFPA 1994, *Protective Ensembles for First Responders to CBRN Terrorism Incidents.*

In addition to the latest adoptions and re-adoptions, DHS previously adopted several NFPA documents that remain in use today.

All NFPA safety codes and standards are developed through a process accredited by the American National Standards Institute (ANSI). The 200 technical committees responsible for developing and updating all 300 codes and standards include 7,000 volunteers, representing enforcing authorities, installation and maintenance, labor, research and testing, insurance, special experts, consumers and other users.



NOTIFIER. A complete, UL 864 9th Edition listed intelligent product line.
As an industry leader in fire and life safety, we make it our business to anticipate new industry standards. That's why NOTIFIER's complete line of intelligent fire alarm control panels is listed to the new UL standard months ahead of time. Specifying NOTIFIER for any application, large or small, ensures a rapid, intelligent response to fire emergencies, minimizing the risk to life and property.

When it comes to fire and life safety, count on NOTIFIER to lead the way.

NOTIFIER. Leaders in Life. Safety. Technology.

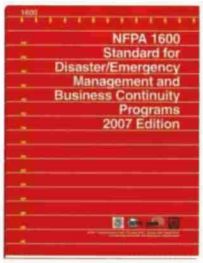
NOTIFIER®
by Honeywell

Visit Booth #640 at NFPA.

NOTIFIER • 12 Clintonville Road, Northford, CT 06472 • 800-289-3473 • www.notifier.com

Circle 030 on card or visit www.nfpa.org/product-info-journal

2007 Edition of NFPA 1600 available at no cost



THE 2007 EDITION of NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, is available for download at no charge at NFPA's Web site (www.nfpa.org). Printed copies can be ordered through the online catalog.

NFPA 1600 establishes a common set of criteria that sets a foundation for disaster management, emergency management, and business continuity programs using a total program approach.

"Whether they are initiated by nature or human caused, disasters and emergencies wreak havoc," said James M. Shannon, president and CEO of NFPA. "As organizations plan for unpredictable situations that may arise, NFPA 1600 has become the gold standard to help organizations develop an inclusive plan – a plan that will prove essential in achieving the most successful outcome possible when disaster strikes."

NFPA 1600's latest edition incorporates changes to the 2004 edition and expands the conceptual framework of the earlier version. Aspects of mitigation, preparedness, response, and recovery, which are focused on in earlier versions have been updated, and prevention has been added as a fifth and distinct concept.

Seminar on fire detection systems in Beijing

THE FIRE PROTECTION RESEARCH FOUNDATION recently conducted a seminar and exchanged information on new technologies and standards for fire detection systems in Beijing.

The Foundation organized the Emerging Technology and Standards Development for Fire Detection Systems Seminar took place at the Beijing International Convention Center as part of the Standards and Conformity Assessment Cooperation Program of the U. S. Trade and Development Agency (USTDA).

The Foundation shared findings from several major research projects on initiatives to enhance fire safety standards for detection in support of the NFPA 72®, *National Fire Alarm Code®*, published by NFPA.

One of the main objectives of the gathering is to foster international collaboration. The seminar was organized under the U.S. China Standards and Conformity Assessment Cooperation Program, which promotes cooperation on industrial standards policy and regulatory development.

The exchange of information will enable both U.S. and Chinese participants to learn the domestic practices of the other.

Residential Sprinklers: How do they work?

Home Fire Sprinkler
COALITION
Improved Fire Protection Through Public Education

IN A HOME FIRE SPRINKLER SYSTEM, a network of piping filled with water under pressure is installed behind the walls and ceilings, and individual sprinklers are placed along the piping to protect the areas beneath them. Because the water is always in the piping, the fire sprinkler system is always "on call". If fire breaks out, the air temperature above the fire rises and the sprinkler activates when the air temperature gets high enough. The sprinkler sprays water forcefully over the flames, extinguishing them completely in most cases, or at least controlling the heat and limiting the development of toxic smoke until the fire department arrives. Only the sprinkler(s) nearest the fire activate. Smoke will not activate sprinklers.

Sprinklers are so effective because they react so quickly. They reduce the risk of death or injury from a fire because they dramatically reduce the heat, flames and smoke produced, allowing people the time to evacuate. Home fire sprinkler systems release approximately 10-25 gallons of water per minute. In a home without sprinklers, a fire is likely to grow to dangerous levels by the time the fire department is able to arrive.

In less time than it typically takes the fire department to arrive on the scene, sprinklers contain and even extinguish a home fire. That not only reduces property damage, it saves lives.

Sprinklers are installed by specially trained contractors, who follow NFPA codes and standards and other local requirements. The best time to install sprinklers is when you are building a new home or remodeling an existing home. Nationally, installing sprinklers adds between 1 percent and 1.5 percent to the total cost of construction. Installing sprinklers during remodeling, known as "retrofitting", generally costs more and the cost depends on the existing structure. Many insurance companies offer a range of discounts for homeowners with sprinkler systems, making comparison shopping worthwhile.

Home fire sprinklers give you added protection from fire and peace of mind. Although most state and local codes do not require sprinkler systems in all homes, NFPA encourages the use of home fire sprinkler systems. Ask your builder about installing sprinklers in your home. Free information for both builders and homeowners is available by contacting the nonprofit Home Fire Sprinkler Coalition.

FIVE COLD, HARD FACTS ABOUT THE NEW QUELL™ FIRE SPRINKLER SYSTEM.

Designed for **cold storage** and **unheated warehouses**, the NEW Quell™ Fire Sprinkler System is the latest technological evolution in fire protection.

The Quell™ System, designed to "surround and drown" a fire, offers significant advantages over traditional wet and dry systems.

1. **Does not require expensive antifreeze, which** can leak and damage storage commodities.
2. **Ceiling-only coverage** eliminates costly in-rack sprinklers and increases storage array flexibility.
3. Provides **fire protection** for Class I, Class II and Class III commodities.
4. Provides the **lowest installation and maintenance costs.**
5. Backed by the **industry's best 10-year limited warranty.**

Quell™
FIRE SPRINKLER SYSTEMS

A Greater Degree of Fire Protection

For over 125 years, Tyco Fire & Building Products has brought you the most innovative fire protection solutions. For more information on Quell™, or to speak with a cold storage specialist, call **1-800-381-9312** or visit **www.tyco-fire.com**.

tyco
Fire & Building Products

Always refer to the technical data sheet for complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines and our limited warranty details.

IARW International Association of Refrigerated Warehouses
MEMBER

FIRE SUPPRESSION
EXPLOSION PROTECTION
FIRE ALARM / DETECTION

You need high quality, reliable products.
You need expert advice, engineered solutions and fast, responsive service.
You need a partner who will work with you to solve challenging projects.

Fike®

1-866-758-6004
WWW.FIKE.COM

SEE OUR INNOVATIVE NEW PRODUCTS AT NFPA, BOOTH #623

PROVEN SAFETY SOLUTIONS FOR OVER 60 YEARS

Circle 014 on card or visit www.nfpa.org/product-info-journal

fire watch

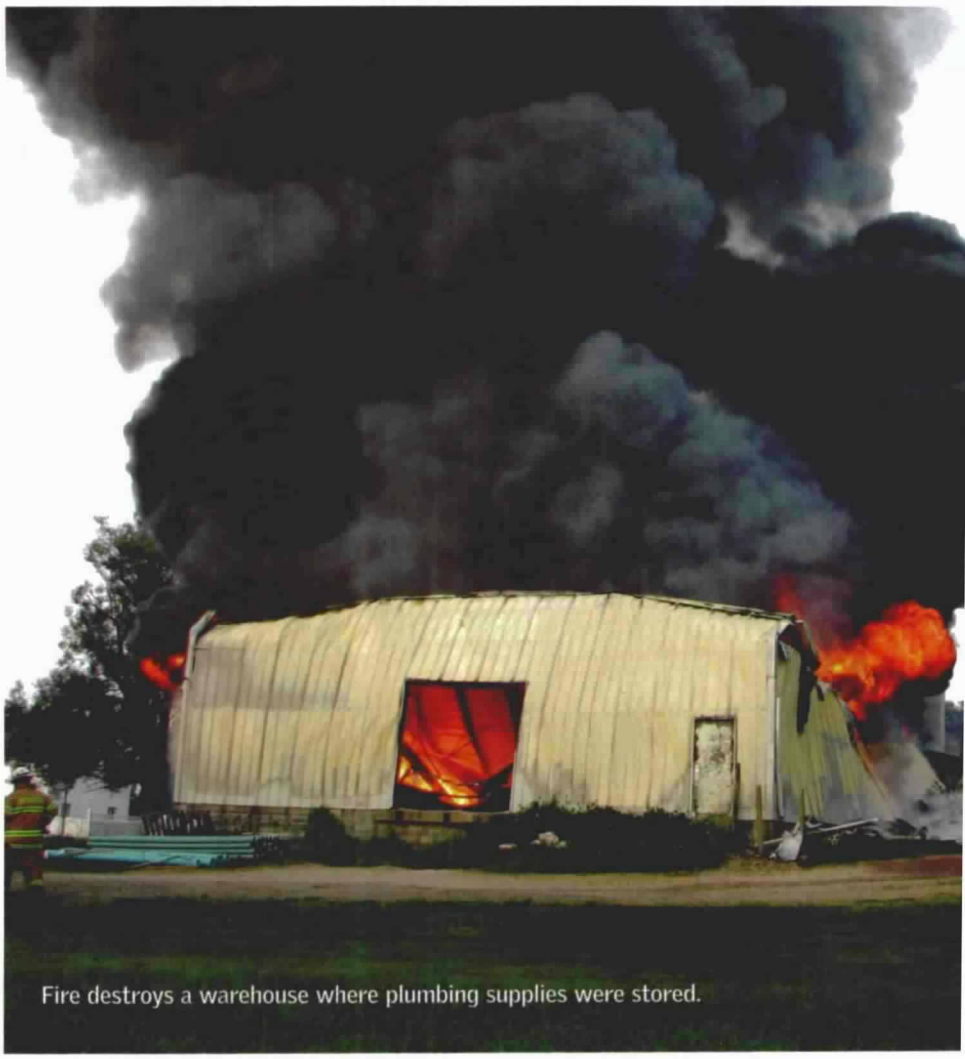
STORAGE

Electrical arc sparks fire in warehouse

PENNSYLVANIA – A fire damaged a warehouse containing plumbing supplies. It was quickly discovered and extinguished but caused $350,000 in damage.

The two-story building was constructed of steel framing with metal walls and roof. It measured 103 feet by 50 feet (31 meters by 15 meters) over a concrete slab. There were no fire detection or protection systems and the building was operating at the time of the fire.

An electrical extension cord near a first-floor garage door shorted and broke into two pieces with one side still charged. The cord fell onto a box of cardboard boxes containing plastic sinks and ignited the packaging material. The fire occurred near a propane-fueled forklift as flames burned off the cylinder hose feeding the lift. The release of propane further fueled and spread the fire before it was extinguished. There were no injuries.



Fire destroys a warehouse where plumbing supplies were stored.

Fire and explosion heavily damage warehouse

UTAH – Smoke coming from the eaves of a storage building alerted employees to a fire within the building. Investigators determined that propane cylinders had exploded during the fire, causing sidewall and roof damage.

The 20-foot- (6-meter-) tall storage building was constructed of steel framing with metal walls and a roof and measured 200 feet by 80 feet (60 meters by 24 meters). Access to the building was provided by two rollup doors on each end and a regular door with another rollup door on one side. The building did not have fire detection and suppression equipment and had been unoccupied for about 30 minutes before employees saw the smoke.

The company manufactured metal safes, and the storage building contained many safes, a propane-fueled forklift, and stored propane cylinders. At 6:05 p.m., the fire department received a 911 call reporting the fire and responded within six minutes. The building and contents were on fire and the sides and roof deformed by the explosion. A defensive attack was initiated and placement of multiple hose lines and master streams were used to control and extinguish the fire.

Investigators determined the area of origin but were unable to determine the ignition scenario. The building, valued at $1,103,840 with contents of $379,000, suffered moderate losses with estimated damage to the building at $275,960 and contents losses of $118,310. There were no injuries.

EDUCATIONAL

Fireworks ignite plastic bins

WASHINGTON–Two juveniles were charged with arson when fireworks they ignited spread to large plastic trash bins and then to the exterior of

Photograph courtesy of Friendship Hook & Ladder Fire Company # 1, Boyertown, Pennsylvania

an elementary school. Fire spread to the wooden roof structure and to the interior of the school before being detected and extinguished.

The single-story school was constructed in phases over several years with concrete block walls, a brick veneer, and a wooden roof with a built-up roof deck. There were no detection or suppression systems installed in the school, only a burglar alarm that sounded after the fire was well developed.

The plastic recycling bins with hinged-plastic covers were placed against the school. A lit firework was placed within a bin, and it ignited the combustibles and spread to the bin itself. Flame heights reached the roofline and spread to concealed spaces involving structural wood framing.

Police investigating the burglar alarm arrived at 10:34 p.m. and alerted the fire department when smoke and fire were observed. Four minutes later, firefighters arrived and found heavy smoke and fire coming from the north section of the school. They advanced an interior hose line. Crews had some success in extinguishing fire in two of the classrooms and alcove, but fire spread in the concealed ceiling and roof spaces was too extensive. Command ordered an evacuation and began a defensive attack.

A trench cut separated the involved north section of the school from the main building, as aerial master streams were used to control the fire. Firefighters fought the fire for four hours before it was declared under control. Damage to the school was estimated at $2.5 million for combined structural and contents losses. One firefighter suffered minor injuries during suppression activities.

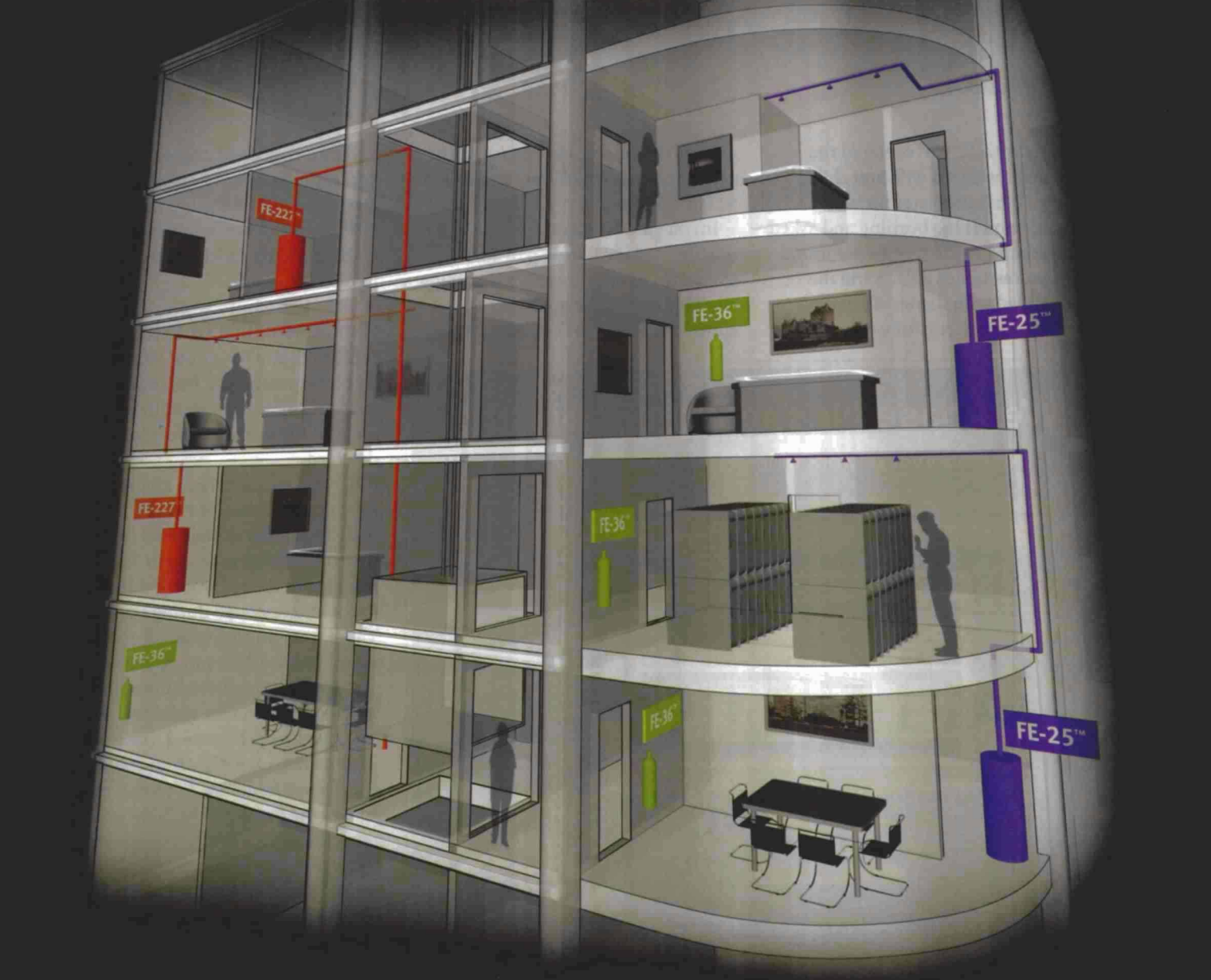
RESIDENTIAL

Disposal of smoking material sparks fire

TEXAS – A fire caused significant damage to an apartment building and spread to two floors. All occupants were able to escape unharmed. One firefighter suffered heat exhaustion during the blaze, which caused an estimated $3 million in combined property loss.

The three-story apartment building was constructed of wood framing with a composite shingle roof. A smoke detection system was in installed in the building and operated. At the time of the fire, the apartment of origin and the building were occupied. There were no sprinklers.

A second-floor resident was smoking outside on a porch and had placed a cigarette butt in a plastic



You protect your building from a number of threats—lawsuits, theft, system failures. But how do you protect it from a devastating fire?

Commercial building fires can be devastating—and not all businesses survive the loss of equipment and productivity. That's why the best building designs depend upon the added protection of DuPont clean agent fire extinguishants. By limiting the spread of fire—even before conventional sprinkler response—the complete line of DuPont clean agents offers the best protection and best sustainable fire suppression solution for people, valuable assets and the environment.

DuPont Fire Extinguishants. The Science of Protection™.
cleanagents.dupont.com

DUPONT
The miracles of science

Visit us at NFPA World Safety Conference & Expo, DuPont Booth 619

DuPont clean agents qualify for LEED® green building credits.

trash receptacle. He reentered the apartment with his wife and child. Nearly 30 minutes later his wife smelled something burning and asked her husband to investigate. He found the window blinds ablaze and the porch filled with flames. The occupant tried unsuccessfully to extinguish the fire. He evacuated the apartment with his family and called 911 at 4:16 p.m.

Investigators determined the cigarette ignited the plastic pail and spread to combustible exterior siding and contents of the apartment. Fire spread vertically to the porch ceiling and into concealed ceiling and floor space, the third floor apartment, and attic space. Once the fire reached the attic, it spread horizontally over the entire building causing partial collapse of the roof.

Candle is cause of fatal fire

ILLINOIS–A 47-year-old woman died when an unattended bedroom candle sparked a fire that spread to other areas of the home before being detected.

The fire occurred in a single-story ranch constructed of wood framing with an asphalt shingle roof. A battery-operated smoke alarm was installed in the hallway by the bedroom and operated during the fire. There were no sprinklers. A passerby called 911 at 12:33 a.m. to report the fire. Firefighters arrived a minute later and found the home well involved. Investigators determined that a candle left burning on a nightstand fell over and ignited bedding. A fan may have spread the fire from the bedroom to the hallway and living rooms where the victim was located.

The victim was medicated and sleeping in a sitting position just outside the room of origin. The victim died of smoke inhalation. The building, valued at $30,000, was a total loss and $10,000 worth of contents suffered $8,000 in loss. There were no other injuries.

Children die in dwelling fire

OHIO–A fire on a second floor of a home spread along common combustibles in a room, as smoke filled the floor and tragically killed four children, ages six months to 10 years, where they slept. A smoke detector on the first floor was found without a battery.

The dwelling was two stories in height and constructed of wood frame, balloon-type construction and measured 49-feet in length by 38-feet in width. The home was occupied at the time of the fire with occupants asleep. There were no sprinklers.

A fire of undetermined origin started at floor level of a bedroom

Farenhyt
Authorized Distributors

A higher degree of flexibility

Farenhyt fits your plans perfectly.

Only Farenhyt offers unsurpassed levels of freedom, control, and flexibility that let you feel confident the fire system you specify will fit perfectly. Through our Farenhyt Engineered Systems Distributors, Silent Knight offers a wide range of fire protection solutions that incorporate advanced technical capabilities and are easy to install, use and maintain, resulting in a perfect fit.

To find out more information on Farenhyt and the IFP Series of products, visit www.farenhyt.com/fit.

SILENT KNIGHT
by Honeywell

Visit us at Booth #551 at the NFPA show in Boston

Silent Knight • 7550 Meridian Circle, Maple Grove, MN 55369 • 800-328-0103 • www.silentknight.com

located in the middle of the second floor. Spreading along clothes, paper, and plastic, fire was intensified by an operating window fan blowing inward to the room. Consuming the combustibles and two mattresses, heat and smoke filled the upper floor and children's rooms.

Firefighters were able to contain the fire to the room of origin, but the second floors were heavily sooted and smoke stained. The first floor remained undamaged. Killed in the fire were three boys ages 6 months, 14 months, and 7 years. A 10-year old girl also died. Three firefighters were injured in the blaze. Damage to the home, valued at $75,000, was estimated at $30,000, with contents of $12,000 having losses of $7,000.

Smoking cause of deadly fire

WISCONSIN–The occupant of single-family home died of smoke inhalation and severe burns after a fire engulfed much of the dwelling. Firefighters received a 911 call from a passerby at 3:16 a.m. reporting the fire.

Constructed of wood framing, the single-story home had an asphalt-shingled roof. There were no smoke alarms or sprinklers.

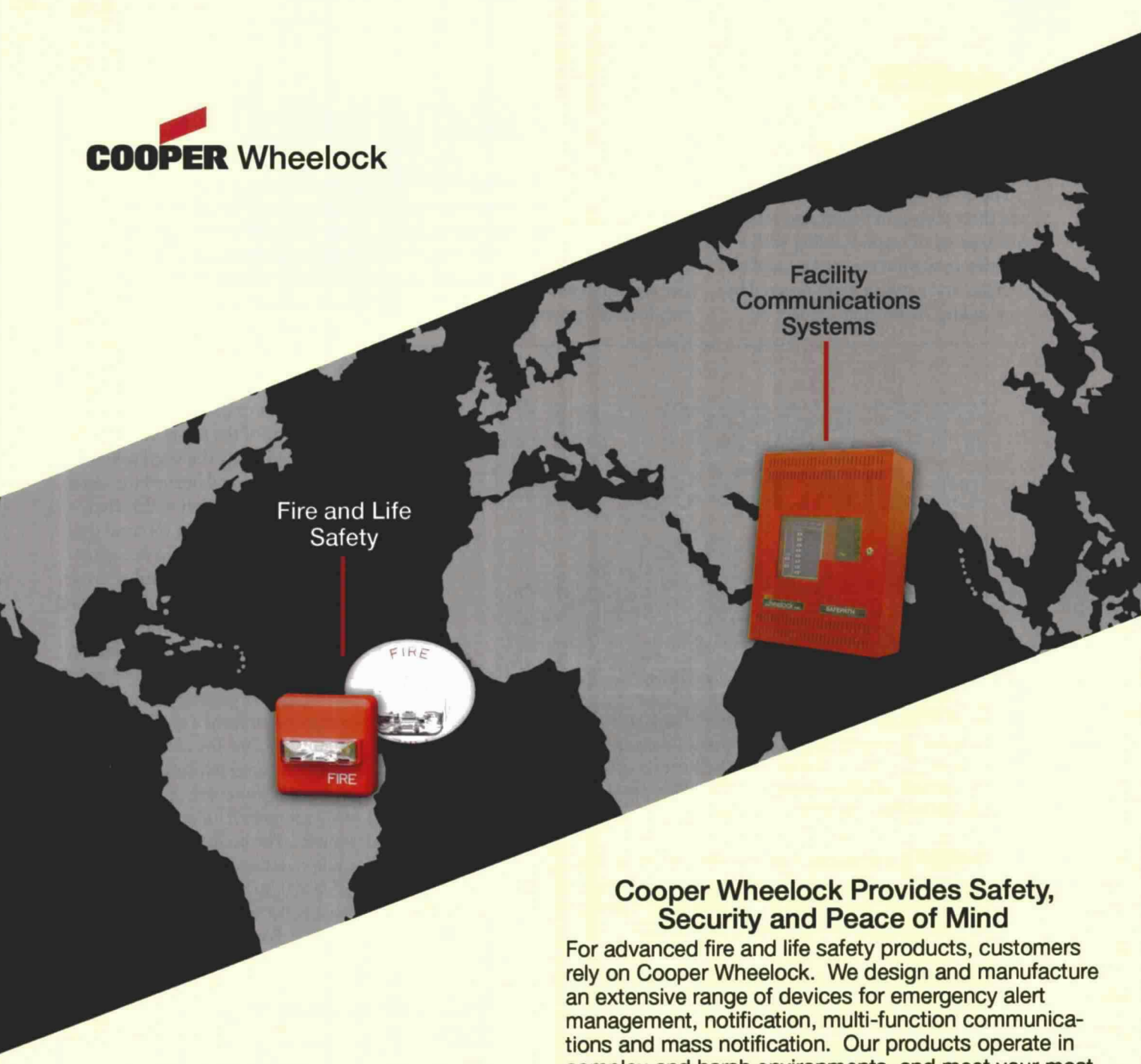
Firefighters arrived two minutes after police to find the building heavily involved in fire with a partial roof collapse at the rear of the building. The police officer had found a car registered to the occupant at the rear of the property and assumed that he was still located within the home. Fire crews utilized a 1-1/2-inch and 2-1/2-inch hose lines into the front door extinguishing fire and finding the sole occupant in the living room.

The 59-year-old victim was found sitting on a sofa and was severely burned and suffering smoke inhalation when pulled from the home, and crews were unable to resuscitate the woman. Investigators determined that the fire started in a rear bedroom and spread to other parts of the home and the attic space. Careless smoking is believed to have caused the fatal fire. Three were no firefighter injuries.

Fire heavily damages apartment building

SOUTH CAROLINA—Careless smoking or wind spreading ashes and cigarette butts ignited contents of an exterior balcony of a large apartment building. The fire spread to the combustible exterior wall and quickly into the attic/roof void where it burned undetected. The building had a fire detection system and an NFPA 13R wet-pipe sprinkler system; however, neither provided coverage in the attic space. An occupant on the top floor of the building smelled smoke,

COOPER Wheelock



Cooper Wheelock Provides Safety, Security and Peace of Mind

For advanced fire and life safety products, customers rely on Cooper Wheelock. We design and manufacture an extensive range of devices for emergency alert management, notification, multi-function communications and mass notification. Our products operate in complex and harsh environments, and meet your most stringent requirements. For more than 85 years, customers in the commercial, health care, government and education markets have relied on Cooper Wheelock.

To learn more about our products and services, call us at 800-631-2148 or visit our website at www.cooperwheelock.com.

COOPER

The Power Behind The Brands.






COOPER Bussmann | COOPER Crouse-Hinds | COOPER Power Systems | COOPER Lighting | COOPER Wiring Devices | COOPER B-Line

Circle 064 on card or visit www.nfpa.org/product-info-journal
Visit us at NFPA Booth 539.

investigated, found a fire on a balcony, and called 911.

The 27-unit apartment building was three stories in height and was constructed of wood framing with a wooden truss roof covered by asphalt shingles and exterior walls covered by vinyl siding. Measuring 150 feet (45 meters) by 60 feet (18 meters), the building was nearly 45 feet (13 meters) tall. The building and occupants were provided fire protection from a hardwired smoke detection system and residential wet-pipe sprinkler system; however, coverage was only located in living spaces.

Occupants of a third-floor apartment were using an exterior balcony as a smoking area. The balcony contained typical adornments, chairs, cushions, and pillows, and a large bucket-type ashtray near the door leading to the apartment. Investigators believe that the bucket may have been overflowing, allowing cigarette butts and ashes to accumulate on the wooden-decked balcony. At some point, ashes or a still-lit cigarette butt ignited one of the many combustibles. Fire spread along the vinyl siding into the attic space and burned for some 30 minutes before being detected.

The fire department received the first notification from an occupant calling 911 at 1:08 a.m. and arrived five minutes later to find the attic and two third-floor apartments heavily involved in fire. Utilizing the initial response of three engines, one aerial ladder, and 17 personnel and others, command ordered a water supply established, had the entire building searched, fire extension halted, and exposures protected. All occupants were accounted for and there were no injuries. The building, valued at 1.3 million dollars with contents of $240,000, suffered structural losses of $464,600 and contents losses of $47,000. Forty sprinklers activated during the fire and were able to help protect internal exposures.

Pyrotechnics leads to explosion and deaths

CONNECTICUT—An explosion leveled a single-family home when gunpowder that was being used in the home manufacture of pyrotechnics ignited. Two male occupants of the home died in the blast and subsequent fire.

The single-story, wood-frame dwelling measured 50 feet (15 meters) by 30 feet (9 meters). Investigators were unable to determine if smoke alarms were present, but there were no sprinklers. The 911 call center was flooded with reports of an explosion and fire at the home, and they dispatched several fire companies to the scene at 3:34 p.m.

They make the most of my time.

It's true that time is money. That's why I always choose dependable products, timely delivery, and outstanding service. That's why I choose Viking. Efficient installation begins with the world's most dependable sprinklers and valves. And Viking designs products that are easier to install. Because fire protection is no place to cut corners, Viking has added their characteristic precision to pipe fabrication. Viking Fabrication Services will accurately measure, cut, label, and deliver pipe to my project's doorstep, so it can be easily installed. Viking SupplyNet ensures I have exactly the quality parts I need, when I need them, wherever they're needed. And if we get stuck, a phone call to Viking's expert technical services team makes quick work of a question. I may not have more time to install these days, but at least Viking makes the most of it. 800-968-9501 • 269-945-9501 • www.vikinggroupinc.com

Trusted above all.™

VIKING®

Circle 054 on card or visit www.nfpa.org/product-info-journal

Fire crews arrived within four minutes and found the home, set back from the street, leveled to the ground with a significant debris field, which was burning along with two cars and a nearby outbuilding. As the home was somewhat obscured by the wooded lot, command ordered all companies to remain well back from the home in a defensive position as explosions continued to come from the home's basement area. Soon after, a large-order explosion followed, scattering more debris about the area and causing several smaller explosions.

Crews attempted a limited approach to the home to extinguish the remaining flames after all the explosions had stopped. An engine supplied by a 4-inch hydrant line used its deck gun and 2-1/2-inch hose line to extinguish the remaining fire.

Investigators determined that the 74-year-old homeowner used gunpowder to manufacture fireworks and other pyrotechnics in the basement of the home. He had two walk-in refrigerators next to the home that were used to store these materials. Witnesses stated the man frequently smoked while working with the dangerous product.

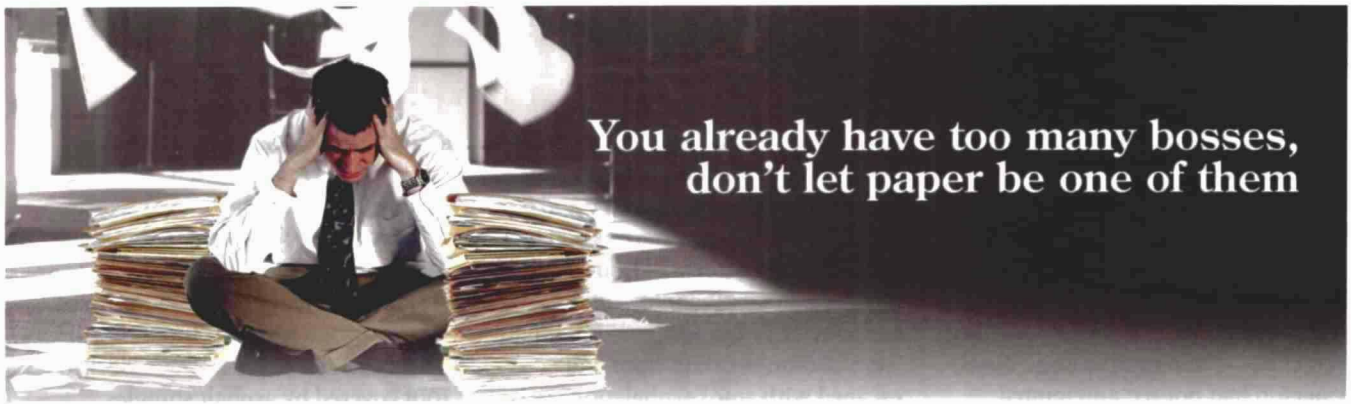
The cause of the initial fire or explosion is undetermined; however, once the building exploded, an unstable environment was created, causing subsequent explosions. A 54-year-old male occupant confined to a wheelchair also died in the fire. Estimates of loss were not reported, but they do state that the home, outbuilding, and vehicles were a total loss. There were no firefighter injuries.

Smoke detectors save occupants from fast-moving fire in single-family home

PENNSYLVANIA—Seven people owe their lives to an automatic fire detection system installed in a single-family home used for student housing. An intentionally set fire on the first floor quickly traveled up the stairs to the second and third floors, blocking the primary exit for the occupants. Four occupants on the second floor had no choice but to fall from second floor windows to escape. Two third-floor occupants were trapped and suffered smoke inhalation injuries.

The three-story, wooden-frame dwelling measured 55 feet (16 meters) by16 feet (4 meters) and had an asphalt-shingle roof. An automatic smoke detection system provided coverage in the bedrooms and common hallways. There were no sprinklers.

An occupant used an open flame device to ignite a blanket resting on top of an upholstered couch. The fire spread to the couch and throughout the living room before advancing vertically to upper floors. Two occupants of the second floor suffered trauma; two others from the same floor had smoke inhalation. The first-floor occupant also suffered smoke inhala-



Collect, analyze and report on facility observations with unparalleled mobility using **Laptops, Tablets, Cell Phones and PDAs.**

Store, manage and track past inspections for historical data trending and one-click reporting.

Create easily understood, uniform inspections for interdepartmental use with our dynamic reporting & fire code correlation engines.

Take advantage of the **instant online account** creation to begin using ODI at **no cost**, with a hassle free sign-up TODAY!

Visit **www.OnDemandInspections.com** & discover how it can make your life easier

THE SIMPLE **ODI** INSPECTION PROCESS = INSPECT IT + SYNC IT + REPORT IT

What people are saying about OnDemand Inspections:

"The purchase of the OnDemand Inspections program has proven to be a good investment. I recommend the OnDemand Inspections software program without reservation."

James D. Barnidge
Loss Prevention Coordinator
Florida School Boards Insurance Trust

"This system has allowed us to focus more time on fire prevention & actual inspections and less time on office work such as code research, estimating, and timely data entry. We cut our inspectors office time by 90-95%. I cannot say enough about this system."

Mark Cavinee
Health and Safety Specialist
School District of Osceola County

Make room for more important things on your desk

ONDEMAND INSPECTIONS.COM

Call 813.600.5176 or visit us online!

tion. The building, valued at $100,000, was a total loss.

Fire traps and kills four children in apartment building

OHIO—An intentionally set fire in an apartment building trapped and killed four children and injured four others. A person had poured and ignited gasoline in a second-floor hallway. The fire quickly traveled to the third floor. Firefighters responding to another call in the area arrived before any 911 calls were made but could not save the young fire victims.

The three-story apartment building measured 120 feet (36 meters) by 60 feet (18 meters). Construction details are unknown. There were smoke alarms, but they had no batteries or the alarms were disconnected. There were no sprinklers.

A report of a vehicle fire in the area at 4:37 a.m. sent an engine company past the fire building. Within minutes, the same engine company called for a second alarm and reported they had people trapped. Four young victims, including three girls ages 3, 5, and 8 and a 5-year-old boy, were asleep in a third-floor apartment. All succumbed to smoke inhalation injuries. A woman, 24, and a 5-month-old infant were also on the third floor, but escaped with smoke inhalation. Two men, 30 and 44, were on the third floor with one suffering from smoke inhalation and another with burn injuries. Three firefighters suffered injuries during suppression activities. The estimated value of the building was $250,000 and it had losses of $25,000. Contents valued at $15,000 were a total loss.

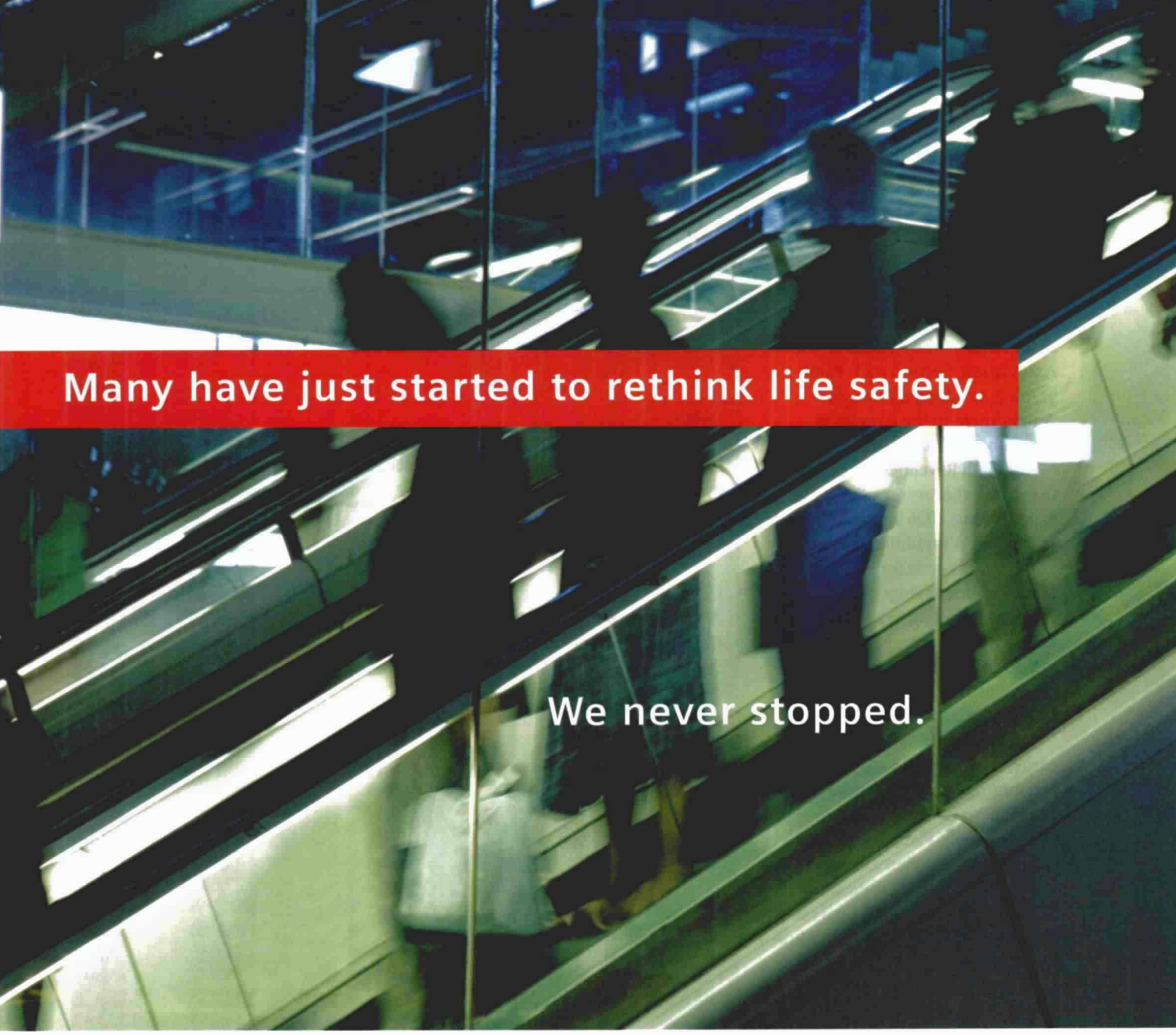
Child ignites fire in apartment that kills four people

GEORGIA—Four people died in a fire that started when a child playing with a lighter ignited a sofa. The first-floor apartment fire quickly involved the entire unit when the fire department arrived. Firefighters entered a bedroom, performed a search, and quickly left when the fire got worse.

The two-story apartment building measured 30 feet (9 meters) by 60 feet (18 meters) and contained four units. It was a wooden-frame building with a brick veneer and a wooden-decked roof covered by asphalt shingles. Investigators were unable to locate any smoke detection equipment. There were no sprinklers.

The fire was detected by an occupant who called 911 at 7:56 p.m. Firefighters arrived five minutes later and found fire coming from windows and doors at the front and rear of the building. Witnesses reported several people trapped, as the first arriving crew entered a front bedroom window to do a quick search. Two 1-3/4-inch hose lines were advanced into the front door to extinguish the fire.

During the overhaul, firefighters found the bodies of two boys, 8 and 5, and a 9-year-old girl.



The life safety needs of buildings have changed radically over our 130-year history and will continue to do so as safety is reassessed nationwide. By anticipating and adapting to this evolution early on, we've provided facility owners, managers and consulting engineers with effective solutions time and time again. Our selection of life safety equipment and systems is compatible with most commercial, industrial and institutional facilities. All products are manufactured to ISO quality standards and are UL listed. So whatever your application, trust our ability to deliver the ideal fit for your current and future needs. Faraday. Because thinking ahead is more important than ever. For details, visit faradayfirealarms.com.

FARADAY

Analog/addressable and conventional fire control panels • Life-safety rated audio and visual alarms

Circle 013 on card or visit www.nfpa.org/product-info-journal

2006 NFPA Treasurer's Report

NFPA TREASURER'S REPORT is issued to Association Members as required by the Articles of the Association, Section 6.11, Paragraph 2, as adopted through Amendment to the Articles in November 2000.

Although Revenues were lower than 2005, they were in line with expectations; 2006 being the lowest year of NFPA's traditional three year business cycle for Publication sales. Expense savings were also achieved, resulting in a better than anticipated Operating Surplus (before investment gains and a pension adjustment) of approximately $4.6 million.

NFPA adopted SFAS 158 a year earlier than required. This new accounting standard requires the recognition of the funded status of NFPA's Benefit Plan, being the difference between Plan assets and the projected benefit obligation. This resulted in an additional net charge of $4.5 million for the Minimum Pension Liability.

NFPA's investments (including Real Estate) contributed $13.8 million for the year. These returns were in line with the respective benchmarks and the Association's total Net Assets now stand at $146 million.

NFPA ended the year with 81,448 members – a record high for the Association.

An analysis of revenue and excerpts from the audited financial statements of the Association for the years ending December 31, 2006 and 2005 follow:

Statements of Financial Position

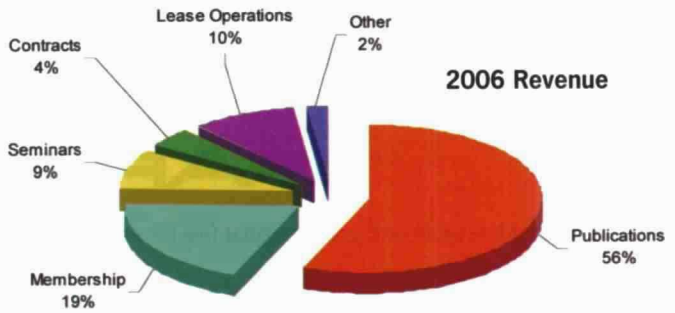
	$'000's	$'000's
	2006	**2005**
Assets		
Cash and cash equivalents	15,481	4,943
Inventory, accounts receivable and other assets	23,963	24,761
Investments	99,548	88,721
Property and equipment	41,188	42,649
Total assets	180,180	161,074
Liabilities and net assets		
Accounts payable and other liabilities	18,026	14,326
Deferred revenues	15,899	14,465
Total liabilities	33,925	28,791
Total net assets	146,255	132,283
Total liabilities and net assets	180,180	161,074

Statements of Activities

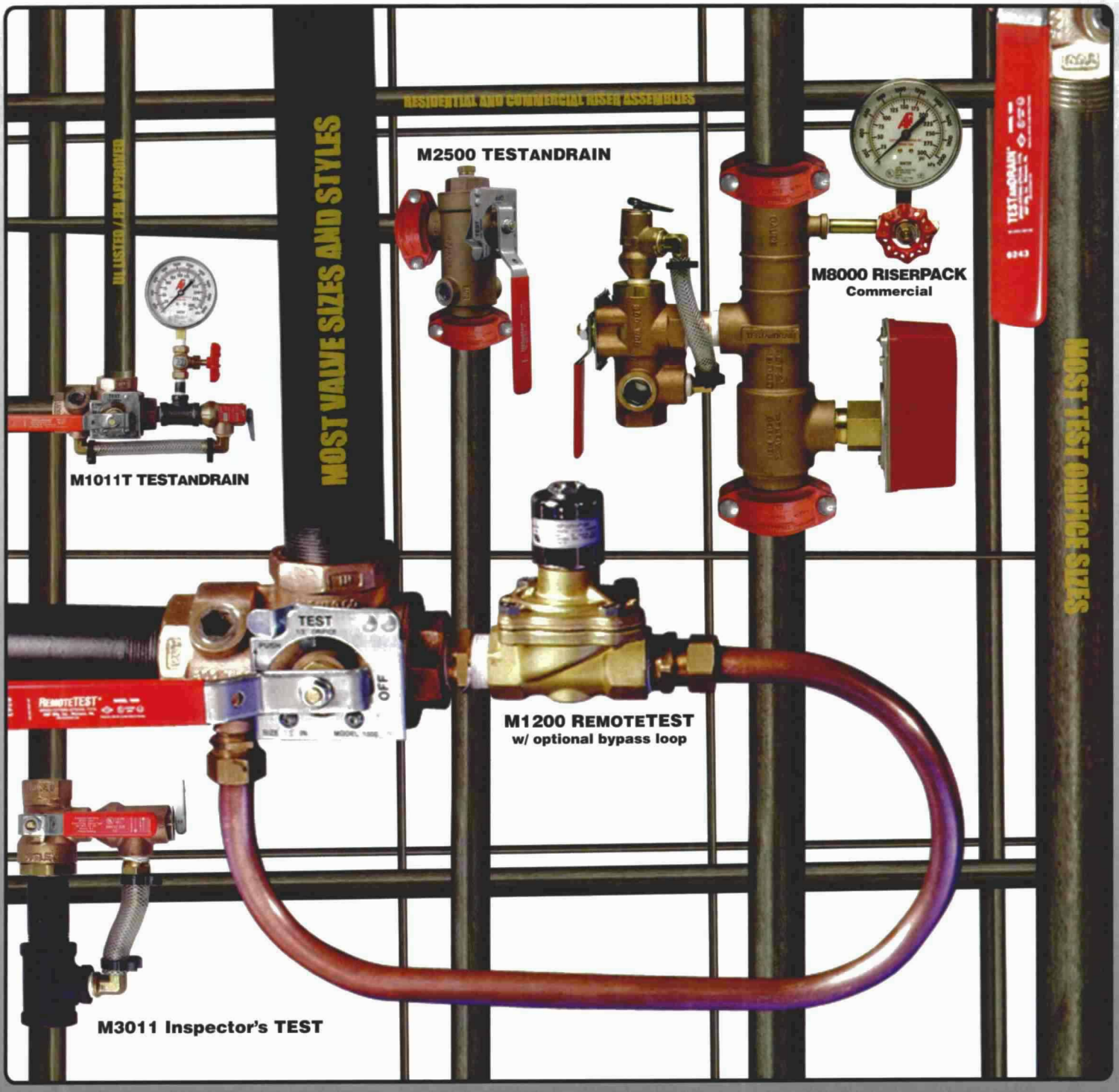
Revenue		
Publications	44,777	57,474
Membership	15,439	15,209
Other	19,436	16,761
Total revenue	79,652	89,444
Expenses	(72,219)	(75,370)
Pension Liability adjustment	(4,496)	(3,557)
Investment return	11,035	3,290
Change in net assets	13,972	13,807
Net assets as of beginning of year	132,283	118,476
Net assets as of end of year	146,255	132,283

Statements of Cash Flows

Cash flows from operating activities	14,742	10,688
Cash flows from investing activities	(4,204)	(3,923)
Cash flows from financing activities	0	(18,094)
Net increase/(decrease) in cash and cash equivalents	10,538	(11,329)
Cash and cash equivalents as of beginning of year	4,943	16,272
Cash and cash equivalents as of end of year	15,481	4,943



VINCENT J. BOLLON *is Treasurer of NFPA and a member of the NFPA Board of Directors.*



AGF

Simplify your ~~Install~~ LIFE

Reliability, Versatility, Code Compatibility

M1000

AGF revolutionized the industry with the **Model 1000 TESTANDRAIN** single valve inspector's test - eliminating the time and space consuming traditional loop assembly. We continue to introduce innovative new products designed to simplify your installation. **AGF TESTANDRAIN** Valves are now made in **more styles**, in **more sizes**, and with **more orifice options** then any other manufacturer. So if your installation requires a simple **M1000 TESTANDRAIN** or you need a simple way to remotely activate all of your test valves from a single location with our **M1200 REMOTETEST** – choose **AGF**, the brand you rely on to give you all the options you need with the proven reliability you and your customers demand.

AGF Manufacturing 100 Quaker Lane • Malvern, Pa 19355 • tel: 610.240.4900 • fax: 610.240.4906 • testandrain.com

Research into practice

Foundation programs round out the *WSC&E*® educational sessions.

Research considers the latest information available on a number of timely issues, such as safety and economic factors associated with the use of hydrogen as a fuel.

OVER THE PAST 18 months, the Fire Protection Research Foundation has facilitated a number of research programs designed to inform NFPA's codes and standards. The results of several of them will be presented at Foundation sponsored sessions at the NFPA *World Safety Conference and Exposition*® (*WSC&E*®).

Research considers the latest information available on a number of timely issues, such as safety and economic factors associated with the use of hydrogen as a fuel, and the risks of fire in transportation facilities and vehicles. Among them:

Fire Test: Smoke Characterization of Flaming and Smoldering Fires—the results of a recently completed study carried out in collaboration with Underwriters Laboratories which characterizes the smoke from many of today's residential materials and smoke detector response.

Optimizing Fire Alarm Notification for High Risk Groups—this study, sponsored through a grant from the U.S. Fire Administration, explores the waking effectiveness of smoke alarms for the hearing and alcohol impaired. Results of a study of the impact of various types of alarm signals on the evacuation behavior of office occupants will also be presented.

National Electrical Grounding Research Project—the results of a 10 year study of the in-ground performance of various types of electrical grounding systems will be presented. The study explored the effects of geographical location, orientation, electrode type and materials on grounding rod resistance.

Using Risk Concepts in Codes and Standards Development—the Foundation has developed a comprehensive guide to applying risk concepts in the development of codes and standards. This presentation will describe the resources contained in the guide and illustrate its application using some real world examples.

Fire Safety in Today's and Tomorrow's Vehicles—this presentation will review the Foundation's recently completed review of fire safety in passenger vehicles. It includes a review of the fire statistics as well as some illustrative case studies. A particular focus of the study is information for first responders and the general public on vehicles with emerging fuel systems—such as hydrogen, ethanol, and electric hybrids.

Automatic Sprinkler Research at the Fire Protection Research Foundation—the Foundation has sponsored several projects over the past year related to improving the provisions in NFPA codes and standards for automatic sprinkler protection. This presentation will review recent projects on dry pipe residential systems, protection of commodities on solid shelves, and others.

The Fire Protection Research Foundation plans, manages, and communicates consortium-funded research on a broad range of fire safety issues in collaboration with scientists and laboratories around the world. The Foundation is an affiliate of NFPA.

The 2007 *WSC&E* will begin at 8 am on Sunday, June 3 at the Boston Convention and Exposition Center. The *WSC&E* is comprised of more than 150 education sessions, a series of one and two-day pre-conference seminars, and a three-day exposition highlighting some of the most cutting-edge products available. Hundreds of experts including engineers, architects and municipal officials gather at this conference to share insights. Continuing Education Units are available for most educational sessions.

KATHLEEN H. ALMAND, P.E., FSFPE, *is the executive director of the Fire Protection Research Foundation.*

GE
Security

Unnecessary toughness

GE Security's EST3 fire alarm panels are engineered to be so tough that they not only meet but exceed many code requirements. Why would we do that? Because we believe in engineering our products to be the most survivable fire alarm systems in the industry. Rigorous scenario testing insures system performance under even the most adverse conditions.

Redundancy built into every EST3 network node means that even if the main controller experiences a CPU failure, external devices and panels continue operating in a stand-alone mode so that life safety protection is not compromised.

Can your life safety system do that? Find out more about the inherent survivability of the EST3 fire alarm control platform, available only from GE. Contact us at 888-GE-SECURITY or visit www.gesecurity.com/est to learn more.

imagination at work

Truth in advertising

There's a need to understand sprinkler activation and operation.

THE MONDAY MORNING quarterbacking that takes place after the Super Bowl has now been extended to the commercials. Perhaps it's time for the fire sprinkler community to raise its voice against the unfair portrayal of sprinklers in commercials.

Although it is impossible to distill the views of those of us who advocate sprinkler systems into a single set of guidelines, we do seem to extend greater latitude to commercials than we do to movies and television. Since movies and television theoretically attempt to portray reality, they are expected to depict the realistic operation of sprinkler systems. In this regard two issues are critical: fire sprinklers respond to heat, and fire sprinklers open individually, not all at once. Unfortunately, the screenwriting community continues to utilize mass sprinkler operation for dramatic effect.

It seems that one in ten new movies has a sprinkler operation scene, and in almost all of them sprinklers are depicted as operating all at once, as in a deluge system. While deluge systems can be found in special applications like aircraft hangars or munitions plants, they are rare in the common buildings in which people live, work, and play. In some of these movies, like *Elizabethtown*, the sprinklers are at least operating in response to a fire. The gratification of seeing the sprinklers extinguish a fire in a crowded banquet hall while the band plays "Free Bird" almost makes up for the misinformed deluge.

In the recent James Bond movie *Casino Royale*, there is no such counterbalance. We learn instead that someone has installed an "emergency sprinkler override" switch in the Miami airport that wets down everything. Even cartoon movies like *The Incredibles* and *Sponge Bob Square* Pants have joined the club, with animated scenes of inappropriate sprinkler operations. This artistic license is a disservice to the public when it dissuades people from installing fire sprinkler systems in their homes or workplaces.

Some commercials, such as one for *Dairy Queen's* Flamethrower Grillburger™, show fire sprinklers properly responding to fire, but with the same outrageous deluge that creates an impact far beyond the area of the fire. This is unacceptable, but in at least one way the fire sprinkler community allows more latitude with advertising than it does with movies or television. The difference is in the response of sprinklers to heat—it can be conceptual heat rather than literal heat. A perfect example was the *Doritos* barbecue chips commercial released for the 1999 Super Bowl, in which the combined heat of model Ali Landry and the barbecue chips set off sequential sprinklers in the ceiling as she walked through a library. The sprinkler operations clearly coincided with successive bites of the barbecue chips. A crowd of young men had gathered in the library, equipped with umbrellas to handle the sprinkler discharge. The major criticism of the commercial was the fact that the sprinklers shut off when Landry left the room, only to reopen when she ducked back in for another bite.

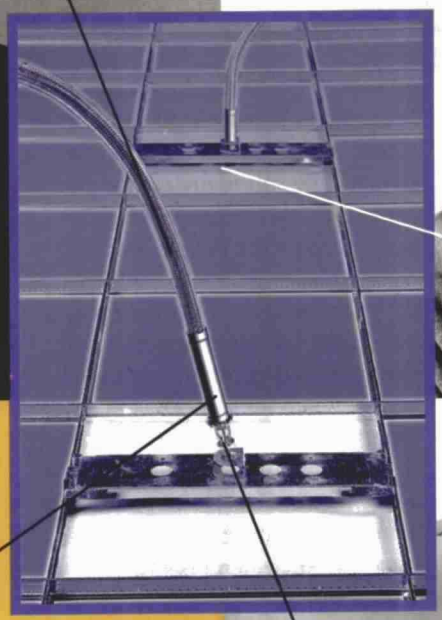
A commercial popular last year depicted a sprinkler operating in a parking garage when a "hot" Chrysler product was pulled up underneath. Again the heat was assumed to be conceptual and acceptable. What made that particular commercial objectionable was the fact that the sprinkler dripped onto the car prior to the release of a full flow of water. The drip was obviously added to reinforce the heat of the automobile, since it sizzled on the hood. But sharp positive sprinkler operation is mandated by fire sprinkler product standards. Advance drips are not acceptable since they could cool the liquid-filled bulb or solder link that senses heat and prevent the sprinkler from fully activating.

So, to keep the fire sprinkler community happy, advertisers need to appreciate the distinction between sprinkler activation and operation. Activation can be from conceptual heat, but must be sharp and positive. Operation should depict water flow only from sprinklers that have been individually activated in the immediate proximity of the source of heat. Most important is that if a fire is involved, the sprinklers should provide control.

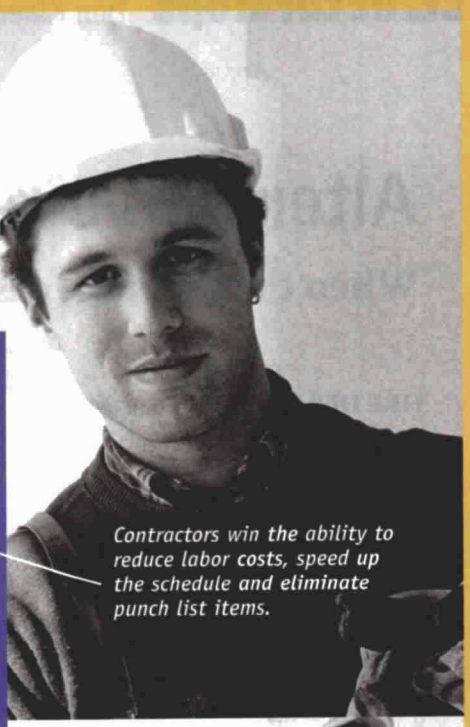
RUSS FLEMING, P.E., *is the executive vice-president of the National Fire Sprinkler Association and a member of the NFPA Technical Correlating Committee on Automatic Sprinklers.*

Illustration by Jack Desrocher

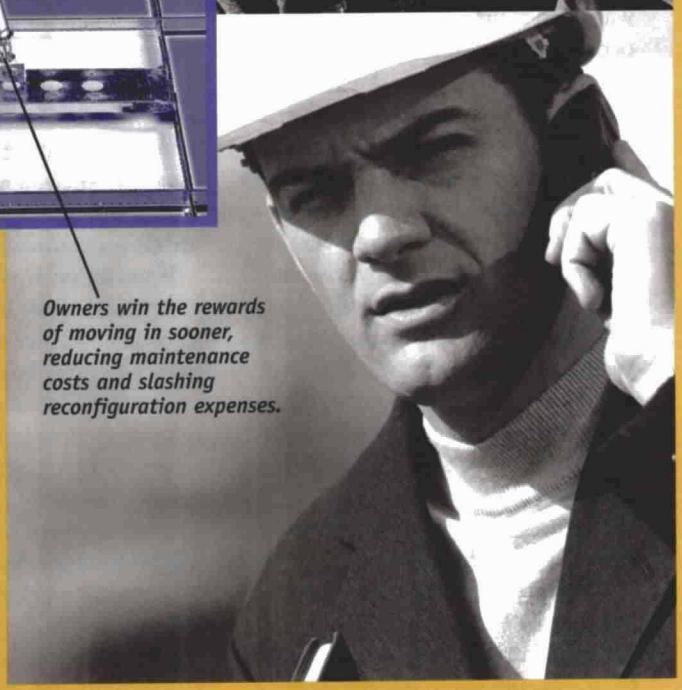
Engineers win the satisfaction of specifying stainless steel quality at black iron prices.



FlexHead flexible fire sprinkler connections install at least 4 times faster than hard-pipe armovers.



Contractors win the ability to reduce labor costs, speed up the schedule and eliminate punch list items.



Owners win the rewards of moving in sooner, reducing maintenance costs and slashing reconfiguration expenses.

Everybody Wins.

Don't you just love it when something comes along that not only benefits you, but pays dividends to vendors, partners and clients alike? That's the beauty of FlexHead flexible sprinkler connections. Whether you're building new or retrofitting old, faster-installing FlexHead connectors make life better for everyone concerned.

Engineers

FlexHead is the only flexible fire sprinkler connection seismically qualified for use. Other benefits include simplified project management, fast track construction and cost effective code compliance.

Contractors

Because you can install four or more FlexHead connections in the time it takes to install one hard-pipe connection, FlexHead slashes installation costs. Higher productivity means higher profitability. Plus, it's a snap to have perfect center-of-tile placements every time.

Owners

Faster installation means shorter time to occupancy. Stainless steel construction means higher quality and reliability. And flexible connections permit easier reconfigurations as your space needs change.

If you haven't been using FlexHead fire sprinkler connections, you've been losing out. Call us, write us or visit our website to get the winning edge.

FLEXHEAD®
INDUSTRIES

The best idea in sprinkler systems since water

800-829-6975 info@flexhead.com

*Visit **www.flexhead.com** for technical data sheets, installation videos and more!*

FGG-BM-I SYSTEM COMPATIBLE · FM APPROVED · c UL us LISTED

Alternative rescue options

When the shortest, easiest, and most direct route *isn't* available.

FIRE DEPARTMENTS are trained and equipped to use several different methods to rescue occupants trapped in a burning building. Occupants should be rescued by the shortest, easiest, and most direct route available. When removing occupants from the upper floors of a building, interior stairs are by far the best rescue choice, provided hallways and stairways are safe for occupant use. Unless damaged by fire or made untenable due to smoke or fire, the stairways provide the most stable and least threatening path to the outside and safety. When hallways and stairways are smoky, extinguishment and proper venting can reestablish exit pathways as a safe and preferred means of egress. Mobile occupants who are not incapacitated by the fire can safely walk to safety using the interior stairs with little assistance from fire fighters. Immobile or incapacitated victims will require assistance in using the stairs and may need to be carried out of the building.

There are times when fire intensity, smoke conditions, and structural damage make it impossible for occupants to use the internal stairways. When this occurs, other rescue methods must be considered. Conditions and building arrangement will determine the best alternative rescue options. Most buildings are not equipped with fire escapes, and oftentimes in buildings that are equipped with fire escapes – typically older buildings – the structural stability of the fire escapes is questionable. However, if a structurally sound fire escape is available, it is usually the second rescue option. Fire escapes do not require fire fighters to place ladders or other rescue equipment in place, and a structurally sound fire escape can provide a safe means of egress for large numbers of people. Building occupants are generally familiar with the location of the fire escape. Fire fighters should expect to find occupants attempting to use the fire escape when the interior stairs are untenable. And, even though for many occupants the fire escape is a more threatening egress path, these same occupants may use the fire escape as their first preference due to proximity even if the stairways are clear of smoke.

If smoke or fire makes the fire escape untenable, it may be possible to protect the fire escape with hose lines, or it may be necessary to use an aerial device or ground ladder to remove victims from a fire escape when fire or smoke conditions cannot be controlled. Aerial devices are considered the third priority rescue method. Aerial devices provide a more stable platform than ground ladders; and in the case of an aerial platform, an unconscious victim can be efficiently lowered to the ground. It may be necessary to carry a victim down a straight stick aerial ladder, but even this option is safer than using a ground ladder and requires fewer fire fighters.

Some buildings or parts of buildings are inaccessible to aerial devices and may require the use of ground ladders. Ground ladders require more effort to place in position and are less stable; and many occupants will be reluctant to climb out a window onto a portable ladder. When the use of ground ladders is indicated, it may require the efforts of a full fire company to rescue a single occupant. Many occupants will need help in gaining access to the ladder from inside the building or require assistance in descending the ladder. Incapacitated and/or disabled victims may need to be carried down the ladder, which is a labor intensive and dangerous tactic. Thus a full fire company may be needed to assist a single victim down a portable ladder, as fire fighters would likely be needed to assist on the floor inside the window, on the ladder itself, and at the heel of the ladder.

Elevators

An interesting question arises regarding the use of elevators for rescue. Fire safety professionals discourage the use of elevators by occupants as a means of escape under fire conditions. However, there are circumstances where elevators could be used to remove occupants when under the fire department's control. The use of elevators for evacuation may be justified in buildings that are subdivided by fire-resistive construction. If an elevator is remote and separated from the fire area with an auxiliary power supply, using it for rescue purposes, especially to evacuate immobile occupants, may be the best option. The use of an elevator in the immediate fire area is

Continued on page 158

This column is adapted from the book Structural Fire Fighting, *available at www.nfpa.org or (800) 344-3555.*

Whatever *your* business, *our* business is to **Protect it.**

Because the real disaster is not being prepared. And the challenge is twofold: in addition to protecting lives and property it's vital that organizations remain operational. EMCOR builds, powers, and services the sophisticated facilities and systems that help clients increase productivity and optimize their organizations, so there's no one better to protect them.

From design/build to inspection and maintenance, from fire alarm and detection to emergency back-up power, when it comes to protecting people, places, and things, **EMCOR Fire Protection Solutions is a shield against the unthinkable.**

How can we help to protect your business?

EMCOR Solutions Are Everywhere You Are.

- Arenas
- Airports
- Automotive Plants
- Bank Branches
- Data Centers
- Detention Facilities
- Distribution Centers
- Government Facilities
- High Rise Buildings
- Hospitals
- Hotels
- Industrial/Manufacturing Facilities
- Offices
- Power Plants
- Process Facilities
- Resorts and Casinos
- Retail Facilities
- Universities

EMCOR

BUILD IT. POWER IT. SERVICE IT...PROTECT IT.

Contact Us: 1.866.890.7794 **or** emcor_info@emcor.net NYSE:EME

S.A. Comunale Fire Protection *An EMCOR Company*

Shambaugh & Son Fire Protection *An EMCOR Company*

Meadowlands Fire Protection *An EMCOR Company*

Circle 012 on card or visit www.nfpa.org/product-info-journal

Existing building systems

Review each code scope and application sections carefully.

NEW EDITIONS OF codes and standards generally address existing fire protection and building systems as existing and do not require changes to those systems based on the newer edition of the code or standard. The newest edition of the code or standard generally references newer editions of referenced standards.

For example, the 2006 edition of NFPA 101®, *Life Safety Code®* references the 2005 edition of NFPA 70, the *National Electrical Code®*. The 2006 edition of the *Life Safety Code*, however, does not require existing systems to comply with the latest edition of the referenced standard. Section 9.1.2 of the *Life Safety Code* states:

"9.1.2 Electrical Systems. Electrical wiring and equipment shall be in accordance with NFPA 70, *National Electrical Code*, unless such installations are approved existing installations, which shall be permitted to be continued in service.

This allows the existing electrical system to remain in service, as long as it was previously approved. The intent is that the existing system was approved under a previous edition of the code applicable at time of system installation.

Similar provisions of the *Life Safety Code* apply to other building systems, including:

Fire Alarm Systems: 9.6.1.3 "...approved existing installation, which shall be permitted to be continued in use."

Air-conditioning, heating, ventilating ductwork, and related equipment: 9.2.1 "...unless such installations are approved existing installations, which shall be permitted to be continued in service."

Rubbish chutes, laundry chutes, and incinerators: 9.5.2 "...unless such installations are approved existing installations, which shall be permitted to be continued in service."

Other standards have similar provisions. For example, NFPA 13, *Installation of Sprinkler Systems* has a provision in Section 1.4 "Retroactivity Clause ... Unless otherwise specified, the provisions of this standard shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of this standard." Other NFPA installation standards have similar retroactivity clauses.

NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, where adopted, apply to all systems, both new and existing. Likewise, NFPA 72®, *National Fire Alarm Code®*, Chapter 10, "Inspection, Testing, and Maintenance" applies to both new and existing systems.

Other standards address existing installations slightly differently. For example, NFPA 30, *Flammable and Combustible Liquids Code*, Section 1.4 "Retroactivity" address existing installations, as follows:

"Unless otherwise noted, it shall not be intended that the provisions of this code be applied to facilities, equipment, structures, or installations that were existing or approved for construction or installation prior to the effective date of this code, except in those cases where it is determined by the authority having jurisdiction that the existing situation involves a distinct hazard to life or adjacent property."

This provision provides more options for the authority having jurisdiction to determine if an existing situation presents a "distinct hazard". This applies to the safe performance of an operation and not just a particular system.

The application of the newer editions of a code or standard generally does not apply retrospectively to existing systems. However, the application of each code or standard needs to be evaluated specifically to the particular project. It is important to review each code scope and application sections carefully.

CHIP CARSON, P.E., *is owner and president of Carson Associates, Inc., in Warrenton, Virginia. He is also a member of the NFPA Board of Directors.*

Illustration by Dave Ember

IF YOUR EQUIPMENT DOESN'T HAVE THIS MARK, IT MIGHT BE CAUSE FOR ALARM.

At our state-of-the-art testing facility, FM Approvals tests smoke detection and fire alarm signaling systems. Systems tested to North American standards by FM Approvals earn the right to carry the FM APPROVED mark. It's a small mark that some people might miss. But it's backed by more than 140 years of extensive product testing. This knowledge offers peace of mind to the jurisdictional authorities whose reputations are on the line. And *nothing* is bigger.

For more information, visit www.fmapprovals.com/smokedetection,
call Bob Martell at +1 (1) 781 255 4850, or e-mail robert.martell@fmglobal.com

FM Approvals®

'What we have here is ...

...failure to communicate!'

MANY OF YOU will recognize the column title from the film *Cool Hand Luke*. Unfortunately, it applies also to the enforcement of the codes and standards promulgated by the NFPA, specifically the *National Fire Alarm Code®*.

As I travel the country, I meet many authorities having jurisdiction (AHJs), and I hear many of them lament that they have problems with the fire alarm systems installed in their jurisdiction. They point to such issues as poor installations, high rates of false alarms, poor fire alarm system designers, and a general lack of proper response to a fire alarm actuation by the occupants. All of these issues can be summed up in the phrase "poor fire alarm system operational reliability."

Tom Hammerberg, the Executive Director and President of the Automatic Fire Alarm Association (AFAA), in his keynote speech at the Fire Protection Research Foundation's Suppression and Detection Research and Applications Conference in Orlando, recently presented some interesting issues for the fire detection community to think about. He began his presentation with the question, "What does the fire alarm industry need?" Tom answered his question with a list of what he believes will move the industry in the right direction:

- improve the design of fire alarm systems,
- improve the installation process,
- improve fire alarm system maintenance,
- improve the enforcement of the Codes,
- improve the Codes (more common sense!), and
- improve the communication between the AHJ, designer and the contractor.

Any time the notification design is inadequate, there will be people who will not get the message of alarm, which could lead to additional injuries or deaths in a fire. There is no question we need more qualified designers. Designers of fire alarm systems need better information and tools, and the Fire Protection Research Foundation is helping in that area through more detection-related research. The industry also needs clearer definitions about the responsibilities of the designer.

The installation process can be improved by using qualified technicians to install and program new fire alarm system installations. But the cry from the industry is, "We can't find enough qualified people!" That may be true, but according to Mr. Hammerberg, the AFAA fire alarm classes are not overflowing. This would seem to indicate that many contractors and manufacturers would rather complain about the problem instead of becoming part of the solution and sending their technicians to get appropriate training.

So where is the process failing us? The *National Fire Alarm Code* may not be a perfect document, but it contains a wealth of information and requirements that, if properly used and enforced, would vastly improve the installed fire alarm systems' operational reliability .

The bottom line is there are too few AHJs enforcing the *National Fire Alarm Code*.

In an informal survey, Mr. Hammerberg has asked at each of the seminars that he presents for the

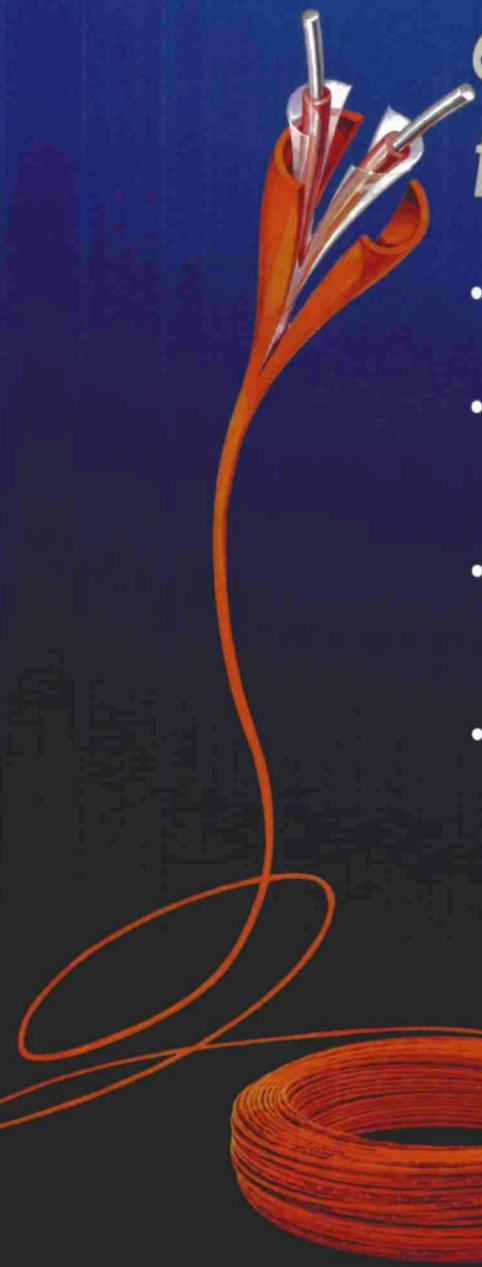
Continued on page 158

WAYNE D. MOORE, P.E., FSFPE *is a principal with Hughes Associates and immediate past chair of the NFPA 72 Technical Correlating Committee.*

Illustration by Richard A. Goldberg

Protectowire 135-XLT . . .

expanding the possibilities



- *The first & only digital type Linear Heat Detector with a 135°F (57°C) alarm temperature rating.*
- *UL listed and FM approved to withstand temperatures to -60°F (-51°C); recommended for use in refrigerated warehouses & commercial freezers.*
- *Suitable for most commercial & industrial applications where increased sensitivity is required.*
- *Comparable in alarm temperature to many spot heat detectors, Protectowire 135-XLT offers expanded retrofit opportunities.*

PROTECTOWIRE®
FireSystems

The Protectowire Company, Inc.
40 Grissom Road, Plymouth, MA 02360-7205 U.S.A.
781-826-3878; Website: www.protectowire.com
An ISO 9001 Registered Company

The Protectowire Company offers an extensive line of fire and heat detection systems, sensors, and related products.

See us at NFPA Expo Boston Booth #769

Important life lessons

Bring safety messages to your home.

MY FATHER, Woodrow; Clara, his wife of 35 years; and Mamie, my favorite aunt, all passed on in the last five years. Although the collective loss weighs heavily on me, I am comforted by remembering the things that each of them taught me about life, compassion, and the importance of enjoying everyday simple pleasures. And, although I've dedicated a significant part of my career to reaching at-risk groups with safety messages, they also taught me a lot about reaching older adults. In their later years, each of my beloved relatives gave me plenty of opportunities, much to my chagrin, to discuss safety issues with them. More often than not, these opportunities involved my gingerly pointing out a hazard that, if left uncorrected, I was sure would cause some permanent injury.

One such opportunity presented itself on a trip to northern Minnesota to visit my Aunt Mamie and my Uncle Ed. When we drove in their car, I noticed immediately that they were not wearing their seat belts. When I slipped into professional mode to tell them the importance of using their seat belts, they looked at each other, didn't say a word, and didn't fasten their belts. A month or two later, Aunt Mamie wrote to say that she and Ed had bought a new car and, from that day forward, they would always wear their seat belts. And, sure enough, on every subsequent visit, they were religiously using their seat belts.

This incident, besides bringing up cherished memories, remind me that people can and do make safety changes at all stages of life and that people will use new safety technology. Although they may not give us the immediate reaction we want, if using a new and improved product makes sense to them, they will.

Public fire safety educators have a great mission to reach the one of the fastest growing high-risk-to-fire populations, people age 65 or older. NFPA's *Remembering When™: A Fire and Fall Prevention Program for Older Adults* can help educators reach older adults with fire and fall prevention messages. *Remembering When* uses three approaches: group presentations, home visits, and smoke alarm installation and fall intervention. Many fire departments are presently using *Remembering When* to reach older adults through group presentations. But older adults vary in their physical and mental abilities and In their risk of death and injury from fires and falls. We know, for example, that people older than 85 or people with limited abilities are at greater risk. In fact, people age 85 and older have a four times greater risk of dying in a fire than the population at large, and they have a greater risk of sustaining an injury after a fall, as well.

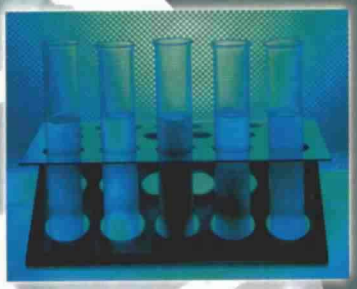
NFPA is sponsoring a scholarship program for fire safety educators and representatives from home visiting organizations to attain its goal of reaching the most vulnerable elderly. The program will bring fire safety educators and representatives from home visiting organizations to Boston to participate in an event that will show participants how to integrate key messages of *Remembering When* into the home visits that visiting nurses and home health care professionals conduct every day.

We hope that the local fire departments working with the visiting agencies will make these messages a permanent part of their visits to older adults. We will award scholarships to 40 groups of firefighter/home visit organization representative pairs. The application deadline is August 1, 2007. More information, including the application, is available at NFPA's Web site, www.nfpa.org.

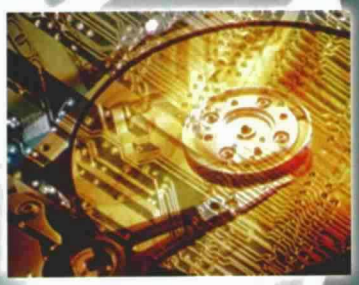
Think of the older adults in your life. Visit or call them today to tell them how much you love them. While you're at it, don't be afraid to help them make changes in their homes to increase their safety. I don't believe the adage "You can't teach an old dog new tricks." After all, NFPA's *Sparky the Fire Dog®* has been around a long time and manages to keep up with NFPA's always progressing safety messages.

SHARON GAMACHE *is the Executive Director of the Center for High-Risk Outreach.*

PETROCHEMICAL



PHARMACEUTICAL/
MEDICAL FACILITIES



COMPUTER OPERATIONS

TELECOMMUNICATIONS

Protecting Your Valued Assets and the Environment.

Chemetron Clean Agent Fire Suppression Systems Utilizing 3M™ NOVEC™ 1230

Environmentally Friendly

Negligible Global Warming Potential (GWP) of Just One

Zero Ozone Depleting Potential (ODP)

Safe for Occupied Spaces

The Chemetron mission is simple – when it comes to fire protection there can be no compromise.

Contact us today to learn more about Chemetron system solutions!

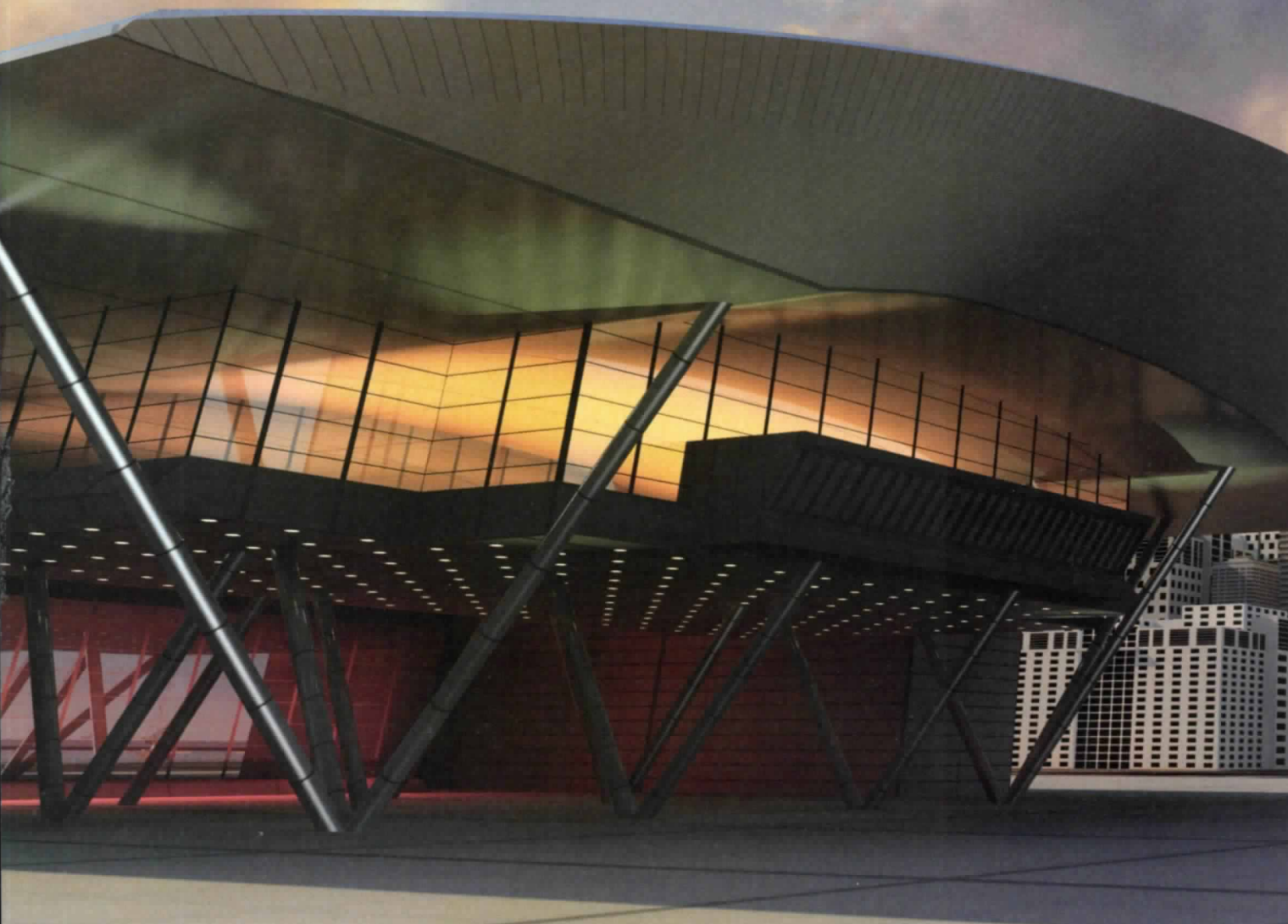
Your Single Source Solution

CHEMETRON

A UTC Fire & Security Company

For further information, please contact us:
4801 Southwick Drive, 3rd Floor
Matteson, IL 60443 USA
Phone: (+1) 708.748.1503
Fax: (+1) 708.748.2847
Website: www.chemetron.com
E-mail: info@chemetron.com

2007 World Safety Conference & Exhibition comes to Boston



THE 2007 WORLD SAFETY CONFERENCE & EXPOSITION® (WSC&E®) will begin at 1 p.m. on Sunday, June 3 at the Boston Convention and Exposition Center in Boston, Massachusetts. More than 5,000 attendees are expected to attend the opening general session where the keynote speaker will be famed historian and Pulitzer Prize-winning author David McCullough. During the opening program remarks will be made by Warren McDaniels, NFPA chairman of the board of directors and James M. Shannon, president of the international association that has been promoting life safety and protecting the public from fire and other hazards for more than 100 years. Awards will be given to industry leaders in recognition of achievements in fire safety education, research, development of codes and distinguished service.

The 2007 WSC&E is comprised of more than 150 education sessions, a series of one- and two-day pre-conference seminars, and a three-day exposition highlighting some of the most cutting-edge products available. Hundreds of experts including engineers, architects and municipal officials gather at this conference to share insights. Continuing Education Units are available for most sessions.

A few compelling topics at WSC&E:

- Featured presentation on the Station nightclub fire will examine code changes, research, and legislation issues related to this tragic fire that killed 100 people in West Warwick, Rhode Island in 2003;
- Spotlight presentation on the Cocoanut Grove nightclub fire that claimed 492 lives in 1942 in Boston;
- Questions on the World Trade Center Investigations;
- NFPA's New Emergency Evacuation Planning Guide for People with Disabilities;
- A look back at the history of *NFPA Journal®*, the authority on fire, electrical, and building safety, as it celebrates 100 years;
- Emergency Response Issues Associated with Pandemic Avian Influenza and Other Animal Borne Diseases, and
- Analysis of changes—2008 *NEC®*

NFPA members will have an opportunity to vote on proposed new safety and building codes that will be adopted around the world.

A wide range of state-of-the-art products from more than 250 exhibitors will be on display including, sprinkler systems and services, fire detection and extinguishing equipment, and alarm and control panels.

WSC&E is co-produced by NFPA and ROC Exhibitions, Inc. Conference partners include *NFPA Journal* and necdigest®. To register and learn more about World Safety Conference & Exposition visit the conference Web site (www.nfpa.org/wsce), or call +1 617 984-7312.

ROC Exhibitions, Inc., a multi-show management firm based in Lisle, Ill., is a partner with NFPA in the production of the World Safety Conference & Exposition. NFPA and ROC also partner and co-produce two additional fire protection industry events: Americas' Fire and Security Expo in Miami Beach and NFPA Fire Expo Mexico held in Mexico City.

Illustration by Jon Watson

SESSIONS

General Session
David McCullough
Sunday, June 3
1:00-3:00 pm
Join us for our General Session, which will feature keynote speaker David McCullough. Mr. McCullough, whose presentation is entitled "Leadership and the History You Don't Know," is a historian and renowned author of such best-selling books as *John Adams* and *1776*, and has been widely acclaimed as a master of the art of narrative history. His books have been praised for their scholarship, their understanding of American life, their vibrant prose, and insight into individual character.

Featured Presentation
The Legacy of the Station Nightclub Fire: Code Changes, Research, & Legislation
Tuesday, June 5
2:15-3:45 pm
In the late evening hours of February 20, 2003, a fast-moving fire spread through The Station nightclub in West Warwick, Rhode Island. This fire completely destroyed the building and resulted in 100 fatalities and more than 200 injuries, becoming the fourth deadliest nightclub fire in U.S. history. This fire immediately invoked memories of other tragic fires in assembly occupancies, such as the Cocoanut Grove, the Rhythm Club, and the Beverly Hills Supper Club. Many common factors can be found when analyzing these tragedies, including combustible interior finish, overcrowding, and problems with egress.

Following months of study and analysis, several changes to key NFPA codes were completed resulting in new requirements that would help to mitigate similar occurrences in the future. These changes were made to NFPA 101®, *Life Safety Code®*, NFPA 5000®, *Building Construction and Safety Code®*, and NFPA 1, *Uniform Fire Code™* relating to Assembly Occupancies.

This presentation will review The Station fire and the response of NFPA to this tragedy, the report and research completed by the NIST-National Construction Safety Team on the fire, as well as the changes made to state fire codes by the states of Rhode Island and Massachusetts as a result of the fire.

- Gary Keith, NFPA Vice President, Building Codes & Standards, Regional Offices (moderator);
- Robert Duval, NFPA Senior Fire Investigator, Regional Manager;
- Daniel Madrzykowski, Fire Protection Engineer, NIST;
- Stephen Coan, State Fire Marshal, Massachusetts;
- George Farrell, State Fire Marshal, Rhode Island; and
- Mike DiMascolo, Assistant State Fire Marshal, Rhode Island.

Spotlight Sessions
Tuesday, June 5
4:15-5:45 pm

Questions on the WTC Investigation
James Quintiere, University of Maryland
Nearly two years after a World Trade Center investigation was completed, unanswered questions remain involving discarded steel with forensic information, steel insulation design process and role of trusses, unproven lost insulation on impact, a fuel load used that is far too low, and more. If remaining questions are addressed, we can properly move forward to improve.

The Cocoanut Grove Fire Revisited
Paul Christian, Boston Fire Department; Jack Deady; John Esposito, Law Office of John C. Esposito; Casey Grant, NFPA; Charles Kenney, author; William Noonan, Boston Fire Department; Barbara Ravage, author; Stephanie Schorow, author
This panel discussion examines the legacy of the 1942 Cocoanut Grove nightclub fire in Boston from a multi-disciplinary approach. The fire killed nearly 500 people and changed fire code enforcement, burn treatment methods, and manslaughter case law around the nation. Experts will examine the fire from multiple angles, including its lasting impact on Boston.

Changes to NFPA 25
David Hague, NFPA
Participants will be able to determine the requirements for inspection, testing, and maintenance of water-based fire protection systems.

Mass Notification—Where Is It Heading?
Raymond Grill, ARUP
The Mass Notification Task Group to the *National Fire Alarm Code* TCC has been diligently preparing proposed code changes for the next edition of NFPA 72. This session will review the current thinking of the task group and discuss the proposed direction for future changes for mass notification systems.

Electrical Safety, OSHA, and NFPA 70E®
Kenneth Mastrullo, OSHA
This session will explore the perceptions and reality of electrical safety from different perspectives. The key to worker safety is being a qualified person. A qualified person has a combination of experience, knowledge, training, and discipline. To better analyze what makes a person qualified, this session incorporates case studies of electrical accidents to explore their root causes and the importance of personal discipline for individual worker safety.

Using Risk Concepts in Codes and Standards Development
Milosh Puchovsky, NFPA
The Fire Protection Research Foundation has been developing guidelines on introducing risk concepts into the codes and standards making process. The outcome of this project is to provide a tool for technical committees in considering the concept of risk informed decision-making when revising or developing their committee documents.

Ask The Experts
Tuesday, June 5
11:30 am – 1:30 pm
BCEC Exhibit Hall A, NFPA Booth 803
Have a pressing technical question you would like to discuss with a seasoned fire, life safety, building, or chemical professional? On Tuesday, June 5, from 11:30 am – 1:30 pm in the Exhibit Hall, NFPA experts will be available to help you!

Building Construction and Safety Code™ Building Construction, Accessibility, Fire Tests, and Life Safety Code®
Ron Cote, P.E., Principal Life Safety Engineer
Hossein Davoodi, P.E., Senior Fire Protection Engineer
Allan Fraser, Sr. Building Code Specialist
Greg Harrington, P.E., Principal Fire Protection Engineer

Hazardous Chemicals and Materials – Liquids, Gases and Dusts
Guy Colonna, P.E., Assistant Vice President, Applications and Chemical Engineering
Robert Benedetti, P.E., Principal Flammable Liquids Engineer
Theodore Lemoff, P.E., Principal Gases Engineer
Carl Rivkin, P.E., Principal Chemical Engineer
Amy Spencer, Senior Chemical Engineer

NFPA 70E®
Joe Sheehan, Principal Electrical Engineer
Bill Buss, Senior Electrical Engineer

NFPA 70®
Jeff Sargent, Senior Electrical Specialist
Mark Cloutier, Senior Electrical Engineer
Joe Sheehan, Principal Electrical Engineer

NFPA 72®
Lee F. Richardson, Senior Electrical Engineer, Signaling
Dick Roux, Senior Electrical Engineer Specialist

Sprinklers, NFPA 13, NFPA 13R, NFPA 13D, and NFPA 25
James Lake, Senior Fire Protection Specialist
David Hague, Principal Fire Protection Engineer


BCEC, Boston, Massachusetts

Preconference Seminars

Friday, June 1

1-Day Pre-Conference Seminars (8:00 am—4:30 pm)
NFPA members: $295
Non-members: $330

- Campus Fire Safety
- Changes to NFPA 72®, *National Fire Alarm Code®*
- Emergency and Standby Power Sources and Requirements
- NEC® Changes
- NFPA 99, *Health Care Facilities*
- FM Global Research Campus Tour

Friday, June 1, and Saturday, June 2

2-Day Pre-Conference Seminars (8:00 am—4:30 pm each day)
NFPA members: $495
Non-members: $565

- CFPS Primer
- *Life Safety Code®* Advanced Problem Solving
- *Life Safety Code®* Plans Review
- NFPA 1, *Uniform Fire Code™*
- NFPA 70E™, *Electrical Safety in the Workplace™*
- NFPA 921, *Fire and Explosion Investigations*
- NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*
- Sprinkler Hydraulics

Saturday, June 2

1-Day Pre-Conference Seminars (8:00 am—4:30 pm)
NFPA members: $295
Non-members: $330

- Changes to NFPA 13, *Installation of Sprinkler Systems*
- Electrical Inspection for the Safety Practitioner
- Explosion Prevention and Protection
- Fire Protection in Food Service Facilities
- Hydrogen Technologies Safety
- Introduction to the 2008 Edition of NFPA 30, Flammable and Combustible Liquids Code
- *Life Safety Code®* for Health Care
- NEC® Changes

Friday, June 1

1-Day Pre-Conference Seminars

Campus Fire Safety
1-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm
This one-day seminar is designed for community fire education staff and campus fire prevention staff to use effective methods to teach college students about fire safety. Attendees will learn how to target five key audiences who can help sell fire safety to college students. Through a series of exercises during the day, attendees will also learn about effective tools to help convey the fire safety message and create action plans to help them improve fire safety for college students on their campus and in the community surrounding campus. Fire marshals, fire safety educators and campus fire prevention staff will find this program useful.
Pre-registration is required

Changes to NFPA 72®, National Fire Alarm Code®
1-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm
The National Fire Alarm Code® deals with the application, installation, location, performance, and maintenance of fire alarm systems and their components. Learn about revisions to this vital Code, including the technical background and practical application of the most significant changes.
(Price includes seminar workbook and NFPA 72.)
Pre-registration is required

Emergency and Standby Power Sources and Requirements
1-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm
Referring to Articles 700, 701, and 702 of the NEC®, the discussion will focus on the electrical installation requirements for emergency, legally required and optional standby systems circuits and equipment that are intended to supply, distribute, and control electricity when the normal supply has been interrupted. Topics will include requirements for types of power supplies, separation of circuits, identification, grounding, transfer switches and location of disconnecting means. The electrical installation requirements of NFPA 110, *Emergency and Standby Power Systems*, will also be considered.
(Price includes seminar workbook, National Electrical Code®, and NFPA 110.)
Pre-registration is required

NEC® Changes
1-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm
Hear first hand about the most important anticipated revisions to the 2008 edition of the *National Electrical Code®*.
(Price includes seminar workbook.)
Pre-registration is required

NFPA 99, Health Care Facilities
1-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm
The proper application of NFPA 99, *Health Care Facilities* is critical for anyone who operates or

maintains a health care facility. Acquire practical information that will allow you to minimize hazards in health care facilities by complying with requirements for electrical systems, medical gases, electrical equipment, gases equipment, and laboratories.
(Price includes seminar workbook and NFPA 99.)
Pre-registration is required

FM Global Research Campus Tour
(SPECIAL PRICE—$35)
1-Day Tour
7:00 am to 2:30 pm or 10:30 am to 5:30 pm
Tour the FM Global Research Campus, the center for property loss prevention scientific research and product testing in West Glocester, RI. You'll witness small- and large-scale fire demonstrations, a full-scale dust explosion and an atomized combustible liquid spray fire. In addition, you'll experience a sprinkler discharge comparison, see a roof uplift test demonstration and see the large-missile debris cannon simulate objects being hurled during a high-wind event. (Price covers registration processing. Transportation and lunch courtesy of FM Global.)
Pre-registration is required

Friday, June 1, and Saturday, June 2
2-Day Pre-Conference Seminars

CFPS Primer
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Since the 2-volume *Fire Protection Handbook* serves as the body of knowledge for the CFPS examination, a high level of proficiency with the handbook is crucial to your success on the examination. The CFPS Primer, while not a test prep seminar, does offer practical instruction to help you quickly locate information found in the handbook. Regardless of whether you are sitting for the examination or not, as a professional concerned with fire protection, safety, and prevention, you will benefit from working with this essential resource. If you are serious about your career in fire protection, the CFPS credential serves as a distinguished mark of achievement.
(Price includes seminar workbook and the Fire Protection Handbook.)
Pre-registration is required

CFPS Examination
The CFPS examination will be offered in pencil and paper format. Pre-qualification is required. The CFPS examination is also offered in computer-based format at over 400 test assessment locations throughout the USA and Canada.

Life Safety Code® Advanced Problem Solving
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Benefit from practical information and expert advice that will help you address the life safety

SESSIONS

problems in your facility. This seminar includes actual problem solving based on real life situations.
(Price includes seminar workbook and NFPA 101®.)
Pre-registration is required

Life Safety Code® Plans Review
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Receive practical instruction that will improve your proficiency with plans and specifications. A review of NFPA 101®, *Life Safety Code®* design issues, including occupancy classification, occupant load, egress capacities, and remoteness of exits will be included in this seminar. Learn to assess compliance with minimum construction types and analyze characteristics such as compartmentation, protection of vertical openings, hazard protection, material ratings and interior finishes. Participants will have the opportunity to review and analyze plans throughout the program. Experience using the *Life Safety Code* is recommend.
(Price includes seminar workbook and NFPA 101.)
Pre-registration is required

NFPA 1, Uniform Fire Code™
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
The 2006 edition of NFPA 1, *Uniform Fire Code™*, provides a comprehensive set of requirements for fire and life safety, as well as property protection. During this overview, the purpose, usage, navigation, and application of this widely adopted code will be discussed. Your participation should provide you with a more thorough understanding of life safety and property protection issues, including automatic sprinklers, standpipes, operating features, occupancies, exits, and fire lanes. The discussion will also cover equipment, processes, hazardous materials, and general fire safety.
(Price includes seminar workbook and NFPA 1.)
Pre-registration is required

NFPA 70E™, Electrical Safety in the Workplace™
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
This seminar will help you comply with electrical safety regulations including OSHA 1910 for general industry and OSHA 1926 for construction. Get the tools you need to provide a safe work environment by learning to identify electrical safety hazards and plan protective schemes and techniques to address each hazard. Be able to recognize the steps needed to work safely on or near live parts, and use a simplified approach to assure adequate PPE for diverse tasks. Anyone concerned with electrical safety will benefit from this seminar.
(Price includes seminar workbook and NFPA 70E.)
Pre-registration is required

NFPA 921, Fire and Explosion Investigations
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Become more proficient in determining fire origin and cause, using the procedures and guidelines for conducting safe, thorough, and effective investigations provided in this comprehensive two-day seminar. You will learn from experts who have conducted countless investigations and who have participated in the development of NFPA 921. The seminar will focus on administration, basic methodology, basic fire science, fire patterns, electricity and fire, appliances, legal considerations, spoliation, major fire management, origin and cause determination, and incendiary fires. Fire inspectors and investigators, litigators, and insurance loss control specialists will all benefit.
(Price includes seminar workbook and NFPA 921.)
Pre-registration is required

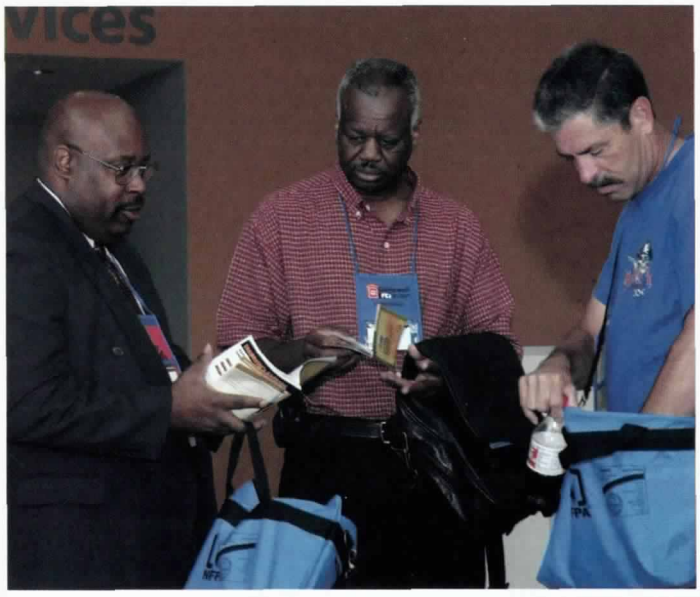
NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Newly acknowledged by both the Department of Homeland Security and the 9-11 Commission, the National Preparedness Standard (NFPA 1600) provides a "total program approach" to the

challenge of integrating disaster and emergency management with business continuity planning. You will learn to use a standardized process to mitigate and prepare for disasters and emergency situations, while developing response and recovery plans. Whether you are establishing a new program or reviewing and improving your existing program, you will find this practical seminar essential.
(Price includes seminar workbook and NFPA 1600.)
Pre-registration is required

Sprinkler Hydraulics
2-Day Seminar
Friday, June 1, 2007, 8:00 am to 4:30 pm and
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Calculate and review sprinkler system hydraulics during this intensive two-day seminar for engineers, contractors, enforcers, and insurance professionals. Participants will be able to determine occupancy classification and complete sprinkler discharge calculations, including selection of the sprinkler K factor. Features influencing friction loss will be considered, along with water supply and system demand. Participants will also have the opportunity to perform sample branchline and whole system calculations. It is important to bring a calculator to this seminar.
(Price includes seminar workbook and NFPA 13.)
Pre-registration is required

Saturday, June 2
1-Day Pre-Conference Seminars
Changes to* NFPA 13, *Installation of Sprinkler Systems
1-day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Learn about the most important revisions to the requirements for design and installation of automatic fire sprinkler systems covered by NFPA 13, *Installation of Sprinkler Systems*. The presentation will include a discussion of the key technical issues related to the changes, and their impact on system design and installation.
(Price includes seminar workbook and NFPA 13.)
Pre-registration is required

Electrical Inspection for the Safety Practitioner
1-Day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Improperly installed, poorly maintained, or damaged electrical systems can pose significant hazards to uninformed employees as well as property. Electrical inspections can reduce the threat of fire hazards. Safety practitioners will learn to identify common problems that need



immediate attention and to recognize signs of potential problems needing further investigation by qualified electrical personnel. This seminar will also introduce the essential elements of an electrical safety program.
(Price includes seminar workbook.)
Pre-registration is required

Explosion Prevention and Protection
1-Day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Industrial processes that handle flammable liquids, gases, and combustible particulate solids are subject to combustion events that can lead to explosions. NFPA 68, *Venting of Deflagrations*, and NFPA 69, *Explosion Prevention Systems*, provide methods to control and mitigate these explosion events. Both documents have significant revisions and are new in 2007.
(Price includes seminar workbook, NFPA 68, and NFPA 69.)
Pre-registration is required

Fire Protection in Food Service Facilities
1-Day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
This seminar will cover the requirements of NFPA 101®, *Life Safety Code®*, NFPA 96, *Commercial Cooking*, and NFPA 17A, *Extinguishing Systems* that impact the design, maintenance, and daily operation of food service operations in cafeterias, restaurants, and the hospitality industry. Topics include means of egress requirements, fire protection systems, cooking equipment ventilation, and developing fire protection and life safety programs.
(Price includes seminar workbook and NFPA 96.)
Pre-registration is required

SESSIONS

Hydrogen Technologies Safety
1-Day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Attend this seminar to learn how to recognize the basic properties and hazards of hydrogen. You will be able to identify equipment that uses, stores, and produces hydrogen and the hazards presented by this equipment. Become familiar with NFPA requirements, federal regulations, and other code requirements that mitigate these hazards during this one-day program.
(Price includes seminar workbook.)
Pre-registration is required

Introduction to the 2008 Edition of* NFPA 30, *Flammable and Combustible Liquids Code
1-Day Seminar
Saturday, June 2, 2007, 8:00 AM to 4:30 PM
The new edition of NFPA 30, *Flammable and Combustible Liquids Code*, includes important changes that affect the safe storage, handling, and use of flammable and combustible liquids. This seminar will provide the latest information on these important requirements.
(Price includes seminar workbook.)
Pre-registration is required

Life Safety Code® for Health Care
1-Day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Learn to apply health care specific requirements for egress, horizontal exits, and fire and smoke barriers during this one-day seminar. You will be able to identify the components of the means of egress permitted in health care occupancies, explain the total concept, and apply the egress configuration provisions for patient room areas, including suites. Determine various code application requirements for new, existing and renovated health care facilities to help ensure the safety of the people in your facility.
(Price includes seminar workbook and NFPA 101.)
Pre-registration is required

NEC® Changes
1-Day Seminar
Saturday, June 2, 2007, 8:00 am to 4:30 pm
Hear first hand about the most important anticipated revisions to the 2008 edition of the *National Electrical Code®*.
(Price includes seminar workbook.)
Pre-registration is required

Educational Sessions/Educational Tracks
>> **Building and Life Safety** concentrates on practical information needed by designers, engineers, and building and fire officials, such as plans review, inspection techniques, and updates on code requirements, new technologies, and best practices.
>> **Codes and Standards** includes information on the reasons behind important code changes and how they will be implemented, and applies specific code requirements to particular occupancies.
>> **Detection and Suppression** focuses on current code requirements and design issues, the application of new technologies in alarm and suppression systems, and the impact of maintenance on systems performance.
>> **Disaster Preparedness/Business Continuity** includes information on assessing risks and consequences, emergency preparedness, contingency planning, incident management, and recovery plans.
>> **Fire and Emergency Response** includes information on fire-fighting apparatus and technologies, safety and preparedness for first responders, incident command strategies, and fire prevention and inspection techniques.
>> **SFPE Fire Protection Engineering** is sponsored by the Society of Fire Protection Engineers (SFPE).
>> **Industrial Fire Safety and Security** provides practical information centered on environmental health and safety, and loss prevention issues.
>> **necforum™** considers new electrical design issues, successful maintenance programs, best practices in electrical contracting, effective inspection techniques, and practical electrical safety programs.
>> **Premises Security** examines issues related to creating and implementing security plans, as well as designing, installing and maintaining security systems.

>> **Public Education** includes fire and life safety planning and strategies, and safety education challenges and solutions.
>> **Research** considers the latest information available on a number of timely issues, such as safety and economic factors associated with the use of hydrogen as a fuel, and the risks of fire in transportation facilities and vehicles.

Schedule at a Glance

Friday, June 1
Pre-Conference Seminar Registration
7:00 am—8:00 am
Pre-Conference Seminars
8:00 am—4:30 pm

Saturday, June 2
Pre-Conference Seminar Registration
7:00 am—8:00 am

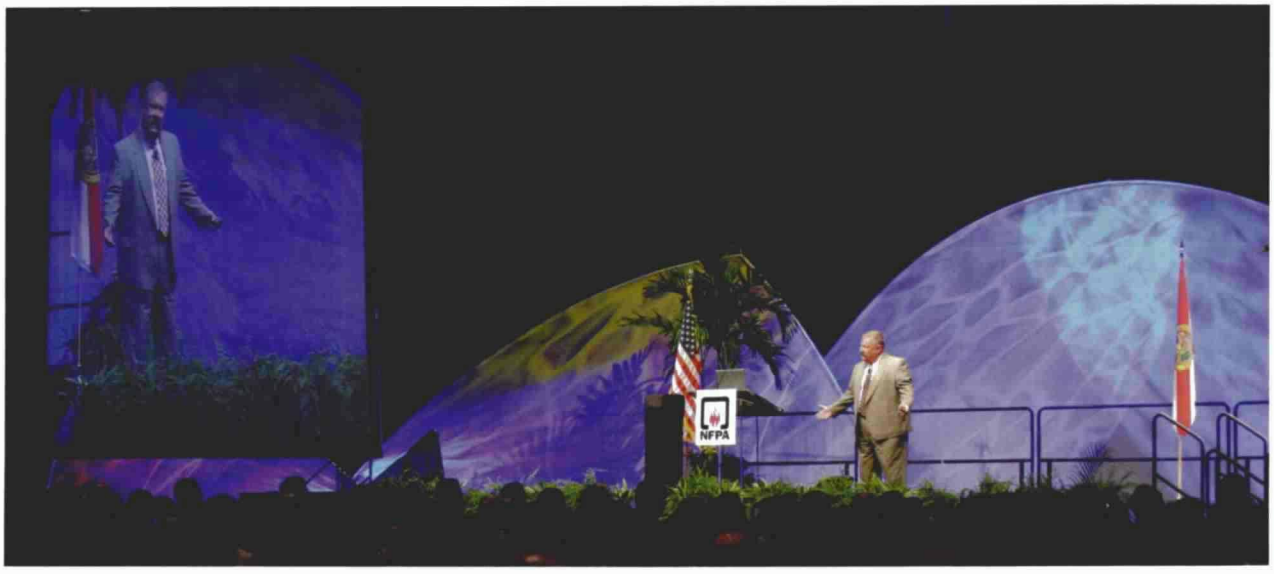
Pre-Conference Seminars
8:00 am—4:30 pm
Conference Registration
1:00 pm—5:00 pm

Sunday, June 3
Conference Registration
7:00 am—7:00 pm
Education Sessions
8:00 am—9:00 am
9:30 am—10:30 am
11:00 am—12:00 noon
General Session with Keynote Speaker David McCullough
1:00 pm—3:00 pm
Grand Opening of Exposition
3:30 pm—7:30 pm
Networking Function in Expo Hall
5:00 pm—7:30 pm

Monday, June 4
Conference Registration
7:00 am—5:00 pm
Education Sessions
8:00 am—9:30 am
10:00 am—11:00 am
11:30 am—12:30 pm
Exposition
11:00 am—4:00 pm
Education Sessions
3:30 pm—5:30 pm

Tuesday, June 5
Conference Registration
7:00 am—5:00 pm
Education Sessions
8:00 am—9:00 am
9:30 am—10:30 am
11:00 am—12:00 noon
Exposition
10:00 am—2:00 pm
Featured Presentation: "The Legacy of the Station Nightclub Fire"
2:15 pm—3:45 pm
Spotlight Presentations
4:15 pm—5:45 pm

Wednesday, June 6
Conference Registration
7:00 am—close of TCR session
Technical Committee Report Session
8:00 am—completion



SESSIONS

Thursday, June 7
Conference Registration
7:00 am—close of TCR session
Technical Committee Report Session
8:00 am – completion

Educational Sessions*
Sunday, June 3
8:00 am to 9:00 am
Human Behavior in Fires

The AHJ Perspective: Planned Building Groups

A SWOT Analysis of Fire Protection Engineering in Australia

The Safe & Secure Schools Project: The SMART School Tool

Case Study: Investigating Fires in Sprinklered Buildings

An Inside Look at Containers for Flammable and Combustible Liquids
Hazardous Occupancies and Explosion Relief
Animal Housing Facilities

Use of Worst Case Scenarios in Fire Safety Design

Committee Leadership Conference

The Reduction of Fire Deaths in Scotland

Older Adults—Fire Safety and Smoke Alarms

Fire Test: Smoke Characterization of Flaming and Smoldering Fires

Prevention of Spills from Aboveground Tanks

Evaluating Your Public Fire Department: How Much In-house Emergency Response Do You Need?

Arc Flash Product Improvement Update and Worker Heat Stress Analysis for Arc Flash

Hazardous Occupancies and Explosion Relief

9:30 am to 10:30 am
Using Design to Help People Make Better Decisions During Fires

Fire Protection Professionals in A/E Project Management

The 1947 Presidential Conference on Fire Prevention 60 Years Later—What Do We Have to Lose?

Multimedia and Data Library for Fire Protection
Optimizing Fire Alarm Notification for High-Risk Groups

Arrive Alive

Report of the National Survey—Fire and Life Safety Public Education in US Fire Departments

Case Study: Underground Rail Station Emergency Evacuation -Review of Current Code Requirements

NFPA 68—Explosion Venting: The New 2007 Edition

Understanding Article 525—Carnivals, Fairs, and Similar Events

Protecting Ethanol Fuel Facilities—Criteria for Detection and Discharge of Foam Systems

Commissioning, A New Buzzword or A Best Practice?
Fire Test: Exploring the Feasibility of Predicting Large-Scale Performance with Parallel Panel Tests

11:00 am to12:00 pm

LIFE SAFETY

metacaulk®

FIRESTOP SOLUTIONS

Our products meet or exceed the Internationally recognized standards NFPA, ASTM and UL.

NFPA World Safety conference & exposition

Visit us at Booth # 206

RectorSeal® has a family of UL approved Metacaulk® Firestopping Products that are designed specifically to fill voids in construction joints and around penetrations in fire rated walls or floors. Whatever your application, we provide the most cost effective products to fit your every need. We also provide the technical expertise to advise you on the best solutions for your project. Call or e-mail us to find out how.

Our full line of Firestop Products are designed to fit every application --
• Composite Sheet • Caulks • Mortars • Pipe Collars • Mastic Sprays • Fire Door Intumescent Strips• Electrical Box Inserts • Pillows • Putty • Industrial Cable Coating

C UL US CLASSIFIED B.S. 476 Factory Mutual System

RECTORSEAL

2601 Spenwick Drive • Houston, Texas 77055 USA 713-263-8001 • FX 713-263-7577
www.rectorseal.com

Circle 063 on card or visit www.nfpa.org/product-info-journal

SESSIONS

Limiting Flash Hazard Power Levels on Industrial Machines

Performanced-Based Design for Senior Housing and an International Case Study

Combustible Metal Fire Safety

Taking Care of Our Own

Fair Housing Accessibility Requirements Overview

Case Study: Centralized Campus Fire Alarm Reporting

Case Study: Transit Station Design in the World's Busiest

National Electrical Grounding Research Project

Dust Electrical Classification

College and University Housing Fire Safety... When Are We Going to Learn?

Biodiesel—A Growing Industry

Combustion Controls: What You Should Know?

Fire Test: Smoke Detector Performance with Deep Beams and Deep Beam Pockets

Fire Test: Sprinkler Protection for Storage Pallets—Exploration of Fire Challenges Using Large Scale Testing

Understanding NFPA 86

NFPA 731—The Second Edition

Human Factors of Means of Egress: History, Current Problems and Implications for the Future

Monday, June 4
8:00 am to 9:00 am
Safeguarding Research Environments

A Guide to Regulating Hazardous Materials Storage with NFPA 1, NFPA 5000®, NFPA 55 and NFPA 400

Case Study: Disaster Assistance Response Teams Directional Sound: Understanding a New Technology To Improve Evacuation Times

NFPA and Fire Safety in High-Rise Buildings: A Status Report

Fire Test: Fire Protection Strategies for Flammable Low Viscosity Silicone Oils

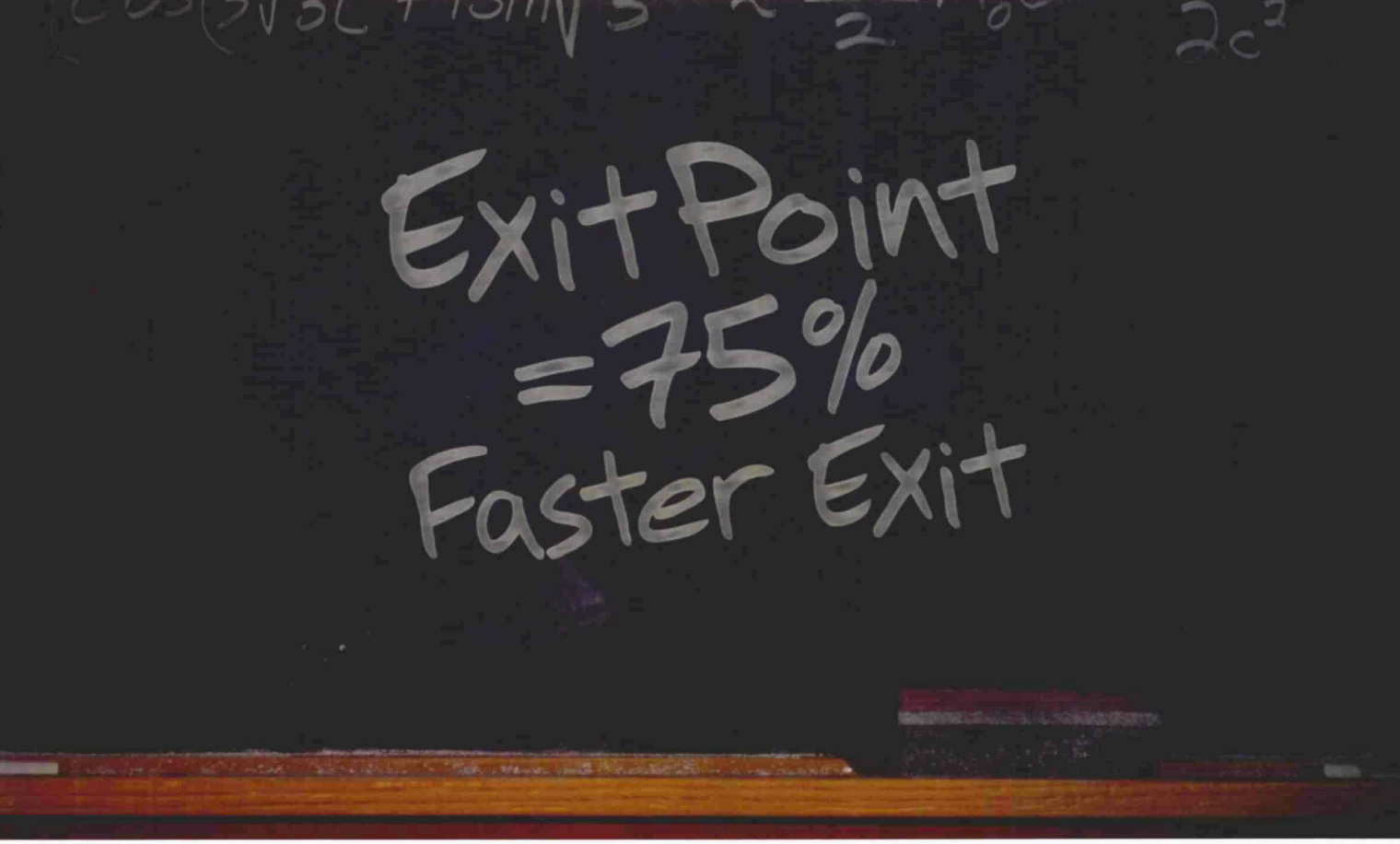
Fire Test: Advances in In-Rack Sprinkler Fire Protection Schemes for High Bay Rack Warehouse Scenarios Based on a European Rack Storage Arrangement

Simulation: the Howard Street Tunnel Fire—Baltimore, Maryland July 2001

Emergency Response Issues Associated With Pandemic Avian Influenza and Other Animal Borne Diseases

Case Study: Burj Dubai: Innovations in Crisis Response Design, Planning and Operations

Equipping Public Education Officers with Tools to Support a Burn Survivor's Return to School



Don't Worry, We Already Did the Math

Improved ExitPoint™ with Voice Messaging is the latest advanced idea from System Sensor and a quantum leap in egress technology. It is technology that can reduce evacuation times up to 75%. Traditional notification appliances alert building occupants to an emergency — an essential function — but they don't tell people how to get out. ExitPoint with Voice Messaging does.

ExitPoint receives top grades as an audible exit sign:

- A+ Uses broadband sound, allowing occupants to pinpoint the closest exit
- A+ Provides verbal instructions on what action to take as occupants approach an ExitPoint device. Includes "stairs up," "stairs down," "area of refuge," and "exit here," essentially eliminating the need for training
- A+ Offers 15 field selectable single and combination language choices
- A+ Provides ideal solution for new or retrofit fire alarm systems
- A+ Listed to UL 464, FM, MEA and CSFM, and the technology of exit marking audible notification appliances is referenced in NFPA 72, National Fire Alarm Code, 2007 Edition.

For a complete ExitPoint Specifier's Kit, call 800-736-7672 or visit systemsensor.com/exitpoint.

SYSTEM SENSOR®

advanced ideas. advanced solutions.™

800/736-7672

www.systemsensor.com

Circle 044 on card or visit www.nfpa.org/product-info-journal

NFPA 13 Update

The Fire Code for the Fire Educator

Understanding the U.S. Fire Fighter Fatality Problem in 2006

Monday, June 4
8:00 am to 11:00 am

Analysis of Changes—2008 NEC®

Health Care Codes and Standards Review

10:00 am to 11:00 am
The Reality of Burn Injury—An Educational Tool, or Scare Tactic?

The Current Knowledge and Training Regarding Backdraft, Flashover, and Other Rapid Fire Progression Phenomena

Getting to Know the Fire Problem—Research Results of Smoking, Cooking, and Rural Fire Safety

Code Enforcement Assistance Using UL Certifications and Services

NFPA 69—Explosion Prevention Systems: Changes for 2007 edition

Case Study: A Children's Crusade for Safety—A Grassroots Campaign to Push for Fire Escape Window Safety Gates

High-Rise Buildings—Large Fires

Visual Signaling in Big Box Stores—Can You See the Light?

Questions on the WTC Investigation

Fire Test: Advances in Cold Storage and Unheated Warehouse Fire Protection

Investigating Incidents Involving Total Release Foggers and Fumigators

Fire Protection and Life Safety Code® Compliance Approaches for Laboratory Facilities

Update on Premises Security

Case Study: Technology Protecting Critical Infrastructure During Disasters
When Water Becomes a Threat: Fire Protection of Pyrophoric Products

11:30 am to 12:30 pm
Globally Harmonized System (GHS)—What it Means for Hazardous Material Transportation, Storage, Handling, and Use

Fire Safety in Today's and Tomorrow's Vehicles

Fire Department Pre-Planning & Operations at Health Care Occupancies

Emergency Generators Vs. People Protection—NFPA 70 Vs. NFPA 70E®

NFPA's New Emergency Evacuation Planning Guide for People With Disabilities

NFPA Journal at 100

Changes to NFPA 25

Residential Sprinklers and Interactions with Ceiling Fans

DHS and Public Safety's Role in Information Sharing

Exploring the Right Balance Between Security and Fire Safety in Detention Centers

Fire Protection Considerations: Paint Hangar Operations and Energy Conservation

Industrial NEC Calculations 101

Achieving More With Fire Corps

2007 Bigglestone Award

Crisis Response Planning With and For Schools

Tuesday, June 5
8:00 am to 11:00 am
Composite Propane Cylinders and Tanks

Tunnel Fire Operations in Frankfurt am Main

Building Tactical Information System for Public Safety Officials: Response to An Intelligent Building

Effect of Air Diffusers on Sprinkler Response Time in Commercial Buildings

9:30 am to 10:30 am

Implementing a Security Vulnerability Assessment Process

Changes in the 2007 Edition of NFPA 96, Ventilation, Control, and Fire Protection of Commercial Cooking Operations

Juvenile Fire Setter Community Coalitions

The Hospital Emergency Incident Command System (HICS) Version 4

Classification of Oxidizers

What Electricians Working in or for Health Care Facilities Need to Know About Electrical Safety for Patients and Staff

A Smart Building Image

Thermal Imaging in Fire Service Applications

Mandatory Carbon Monoxide Legislation: the Pros and Cons

Seismic Changes to NFPA 13—2007 Edition

The Successful Use of Emergency Ventilation Systems Can Significantly Enhance Fire Safety in Road Tunnels

Identification of Dust Explosion Hazards and Mitigation Using NFPA Standards

Assembly Occupancies: Manage the Crowd, Manage the Venue — Tools and Outcomes for Success

11:00 am to 12:00 pm

OSHA's Compliance Assistance Resources

Leadership-Accountability-Culture-Knowledge

Hydrogen Technologies Safety

The Fire Marshal Town Hall Meeting

Simulation: Siting Hydrogen Fuel Cell Supplies

Where Does He Get All Those Wonderful Toys?

It's Fire Prevention Week 2007

Postive Pressure Ventilation in High-Rise Buildings

Dust Explosions—A Soluble Problem

Application of Video Smoke & Flame Detection Systems in Vehicle Tunnels and Other Applications

Fire Service Features of Buildings and Fire Protection Systems

Case Study: Emergency Response Planning: New York City Mandate

Seismic Brace Design and Calculation 101

**For a complete listing of the educational sessions information and to register log onto nfpa.org/wsce.*

PRE-CONFERENCE EVENT

Where Discovery Delivers

FM Global's Research Campus establishes new industry methods and standards with advanced technology labs. By Thomas A. Lawson

Situated on 1,600 acres (648 hectares) in the woods of West Glocester, Rhode Island, the $78-million Research Campus ranks as the largest investment in loss prevention FM Global has ever made. At the complex, distinguished scientists and loss prevention engineers conduct research in four main laboratories: Fire Technology, Natural Hazards, Electrical Hazards, and Hydraulics. Each is equipped with the most advanced technology and was designed with property owners, product manufacturers, and continuously evolving industry trends in mind. Another prominent feature is an explosion bunker specially designed to help visitors understand the damaging effects of dust explosion.

Discoveries made at the Research Campus have been instrumental in helping FM Global clients reduce property risk from fire, explosion, and natural hazards. Research results also help to establish new industry methods and standards that advance loss prevention practices and new product development. With 40 years of full-scale testing experience and the ability to deliver both developmental cost savings and improved reliability of research conclusions, the FM Global Research Campus is integral to preventing property loss worldwide.

As part of the pre-conference events planned for this year's *World Safety Conference and Exposition®* (*WSC&E®*), NFPA's professional development is sponsoring an FM Global Research Campus tour. The one-day tour is on Friday, June 1. NFPA members can attend either the 7 am to 2:30 pm or the 10:30 am to 5:30 pm tour. Attendees will witness small- and large-scale fire demonstrations, a full-scale dust explosion, and an atomized combustible

All photos courtesy FM Global

liquid spray fire. In addition, visitors will experience a sprinkler discharge comparison, see a roof uplift test demonstration, and see the large-missile debris cannon simulate objects being hurled during a high-wind event. Pre-registration is required. For more information, visit www.nfpa.org.

Fire dynamics

Fire begins when an ignition source connects with combustible material in the presence of oxygen. The formula is easy to grasp, but understanding the science of fire dynamics is anything but simple. At the Fire Technology Laboratory, FM Global continues to advance the understanding of how materials and fire behave, measure and learn from the rate of heat release from different configurations of materials, and determine combustibility and protection requirements for different commodities produced and used by FM Global clients.

Spanning 108,000-ft.^{2} (10,033-m^2), FM Global's Fire Technology Laboratory is the centerpiece of the Research Campus and the largest facility of its type in the world. The laboratory's sheer size allows researchers to replicate warehouse-size fires of up to 2,000°F (1,093°C). Through this full-scale testing, FM Global researchers and engineers develop property loss prevention solutions that ultimately minimize operational downtime, supply chain interruption, and loss of market share for its clients. The Fire Technology Laboratory also features several smaller labs for intermediate- and small-scale burn testing, enabling researchers to study a much broader range of commodities and storage arrangements.

Natural hazards

Windstorms, floods, and earthquakes pose major threats to property, but the loss potential of these natural hazards can be greatly reduced. In fact, FM Global clients who had facilities in the path of Hurricane Katrina and followed the company's recommendations reduced their average dollar loss by 85 percent. Specifically, clients who followed these engineering guidelines had losses of 34 cents per every $100 of their total insured value, while clients who did not follow these recommendations had losses of $2.30 per every $100 of their total insured value. Those recommendations were inexpensive, too: just $7,400 in improvements per facility to avert an average of $1.5 million in property damage per location.

Today, the new Natural Hazards Laboratory helps researchers further understand what causes building materials to fail and the best ways to

Windstorms, floods, and earthquakes pose major threats to property and can be recreated at the facility. Shown in the top image, a group of technicians prepare to conduct a natural hazard test. The center photographs show a 2x4 stud protruding from a plywood wall. This was the result of a simulated wind storm. The final image shows the hydraulics laboratory at the test facility. Projects undertaken at the Hydraulics Laboratory are driven by the needs of industry and by FM Global clients' desire for fire protection that is effective, affordable, and flexible.

design buildings to resist the effects of Mother Nature. Researchers can now replicate even the toughest weather phenomena and recreate hurricane-force winds of 160-mph (258 km/h). Winds this strong truly test the strength of glass and the endurance of building materials, particularly roof systems.

Inside the laboratory, a hail gun launches ice balls of varying sizes to simulate moderate and severe hail storms, and a debris cannon shoots simulated windblown wood projectiles at speeds matching those of a real hurricane to determine impact resistance of doors, windows, and siding. The laboratory also is equipped with a powerful xenon arc ultraviolet (UV) accelerated weatherometer to measure the effects of the sun's UV radiation on building materials that have been exposed for long periods. And testing includes accelerating the weathering of all types of building materials to determine more precisely how to design and install them for long-term performance.

FIRE IS A LEADING CAUSE OF PROPERTY LOSSES WORLDWIDE, YET IT'S BEEN PROVEN THAT DEVASTATING FIRE LOSS IS INDEED PREVENTABLE WITH THE PROPER SPRINKLER PROTECTION IN PLACE.

Electrical hazards exposed

Electrical ignition sources are consistently identified as one of the top three causes of fire and explosion in buildings containing flammable gas, liquid, and combustible dust. At the Electrical Hazards Laboratory, FM Global applies scientific study and improved testing capabilities to learn more about conditions that cause losses to equipment in these hazardous environments.

The laboratory's state-of-the-art gas-flow instruments and monitoring systems allow engineers and technicians to accurately prepare various sizes of enclosures for explosion testing, and provide FM Approvals the capacity to run numerous tests simultaneously on some of the largest electrical equipment in the world. Researchers here test a range of products, including process-control instrumentation, test and measurement equipment, lighting fixtures, and industrial material-handling equipment.

These tests ensure that, when designed to meet FM Approvals or other recognized standards, the equipment will not ignite dust or any type of gas during normal operation. The explosion test cell area is spacious enough for testing of larger enclosures and motors, such as mining equipment. Another test cell is dedicated to hydrostatic overpressure testing, and a salt fog chamber accelerates the process of metal corrosion to produce valid research conclusions at a fraction of real time. Our clients are assured the testing conducted here will protect their properties from explosion and other catastrophic loss that can result when equipment does not operate properly or is not adequate in a hazardous environment.

Hydraulics Laboratory

Fire is the leading cause of property losses worldwide, yet it's been proven that devastating fire loss is indeed preventable with the proper sprinkler protection in place. By establishing performance criteria and through rigorous testing, engineers and researchers at the Hydraulics Laboratory have played a major role in FM Approvals' certification of devices used for cost-effective fire protection.

Projects undertaken at the Hydraulics Laboratory are driven by the needs of industry and by FM Global clients' desire for fire protection that is effective, affordable, and flexible. At the laboratory, sprinkler performance capabilities are scientifically understood and empirically tested so that, in the final analysis, there is no question about a system's effectiveness.

The laboratory houses both wet- and dry-lab test areas where engineers and technicians perform various hydraulic, mechanical, and environmental tests on fire protection system components and related devices, such as sprinklers, couplings, and valves. Tests such as these ensure the devices will work as intended when properly installed and maintained; and the cost of testing and development is kept to a minimum in an effort to make reliable and effective products available at an affordable price.

For additional information and to register for this year's *WSC&E*, visit www.nfpa.org/wsce.

THOMAS A. LAWSON is senior vice president of engineering and research at commercial and industrial property insurer FM Global. He is a member of NFPA, the American Society of Mechanical Engineers, and the Industrial Research Institute.

Amerex Corporation

P.O. Box 81 Trussville, AL 35173 ❖ Ph: (205)655-3271 ❖ Fax: 1-800-654-5980 ❖ sales@amerex-fire.com
Visit us online at www.amerex-fire.com

ISO Certified
9001-2000
14000-2004

Keeping you in mind. Plain and Simple.

PORTABLE EXTINGUISHERS
- DRY CHEMICAL
- HALOTRON I
- HALON 1211
- WATER / FOAM
- CLASS K
- WATER MIST
- CARBON DIOXIDE
- CLASS D
- HIGH PERFORMANCE

WHEELED EXTINGUISHERS
- DRY CHEMICIAL
- FOAM
- CARBON DIOXIDE
- HIGH PERFORMANCE

SYSTEMS
- RESTAURANT KITCHEN
- OFF ROAD VEHICLE
- TRANSIT BUS
- FRONT ENGINE SMALL BUS
- INDUSTRIAL (PAINT BOOTH / DIP TANK)
- PRE-ENGINEERED CLEAN AGENT **NEW!**
- METHANE GAS DETECTION

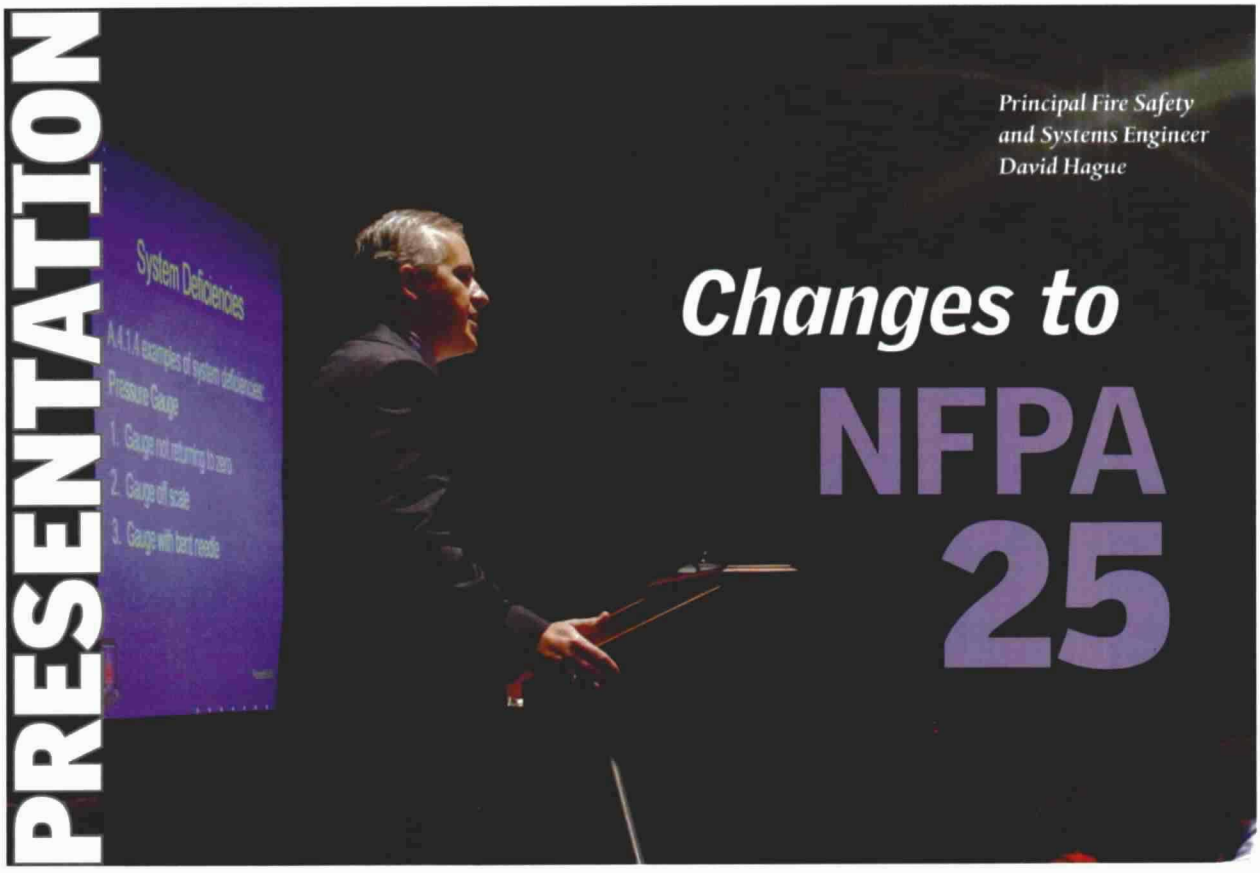
Getz Manufacturing

Ph: 1-800-553-3503 ❖ Fax: 1-800-473-6088
email: salesinquiry@getzmfg.com ❖ web: www.getzmfg.com

- Vacu Fill Systems
- Hydrotesters
- Hose Testers
- Vises
- CO2 Pumps
- Clean Agent Systems
- Mobile Fire Service Equipment Vehicles

Proudly Made in the USA!

PRESENTATION



Principal Fire Safety and Systems Engineer David Hague

Changes to NFPA 25

SPOTLIGHT

A lack of maintenance is often a contributing factor to sprinkler failure. NFPA 25 provides the needed guidance. By John Nicholson

Because sprinkler systems are sophisticated enough to require competent fire protection engineering and function best in buildings where there is a complete integrated system of fire protection, it is especially important that proper procedures be used in the installation and maintenance of sprinkler systems. This means careful adherence to the relevant standards that include NFPA 13, *Installation of Sprinkler Systems*, and NFPA 25, *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*.

According to the NFPA 25 *Handbook*, before the development of NFPA 25, the maintenance of systems was well documented as a significant contributing factor in the successful operation of a sprinkler system. First published in *Fire Journal* in 1965 and again in 1970, Automatic Sprinkler Performance Tables, 1970 Edition, indicated that sprinklers perform exceptionally well. However, when systems do fail, one of the top reasons cited is a lack of proper maintenance. As with previous editions, the 2008 edition of NFPA 25 addresses the leading causes of failure, which include water control valves being shut off, inadequate water supply, defective dry-pipe valves, obstructions, and frozen systems.

More recent data from NFPA's *U.S. Experience with Sprinklers* 2005 report confirms the importance of maintenance. For 1999-2002, lack of maintenance was the reason cited for sprinkler failure in 11 percent of reported structure fires where sprinklers were present, trailing system shut-offs (65 percent) and defeating the system by manual interruption (16 percent).

The proposed edition of NFPA 25 includes guidance on System Deficiencies, Performance-Based Testing, Dry-Pipe Systems, and the addition of a new chapter that deals with Water Mist Systems. NFPA 25 is expected to be voted on at the *World Safety Conference and Exposition®* (*WSC&E®*) in Boston.

NFPA 25 is also the subject of a Spotlight Presentation at the *WSC&E*. NFPA Principal Fire Safety and Systems Engineer David Hague, NFPA staff liaison to the NFPA 25 Technical Committee, is scheduled to present on the topic that is designed to help participants determine the requirements

NFPA photograph

for inspection, testing, and maintenance of water-based fire protection systems. It will be offered on Monday, June 4, from 11:30 a.m. to 12:30 p.m. and again Tuesday, June 5, from 4:15 p.m. to 5:45 p.m.. For more information and to register for the *WSC&E*, visit www.nfpa.org/wsce.

The Technical Committee on Inspection Testing and Maintenance of Water-Based Systems received 222 proposals seeking changes to the standard, which is widely used in the industry. The fall 2006 Revision Cycle began with an ROP Meeting. The ROP was published in late 2005 and the May 2006 ROC meeting yielded 74 comments. The ROC was published and posted back in August 2006 and a handful of NITMAMs were received by the January 26 deadline. The Standards Council will act on the standard at its July meeting.

Origin and development of NFPA 25

The first edition of NFPA 25 was a collection of inspection, testing, and maintenance provisions that helped ensure the successful operation of water-based fire protection systems. NFPA 25 was developed as an extension of existing documents such as NFPA 13A, *Recommended Practice for the Inspection, Testing, and Maintenance of Sprinkler Systems*, and NFPA 14A, *Recommended Practice for the Inspection, Testing, and Maintenance of Standpipe and Hose Systems*, which have successfully assisted authorities having jurisdiction and building owners with routine inspections of sprinkler systems and standpipes. These documents have since been withdrawn from the NFPA standards system. NFPA 25 became the main document governing sprinkler systems as well as related systems, including underground piping, fire pumps, storage tanks, water spray systems, and foam-water sprinkler systems.

This document provides instruction on how to conduct inspection, testing, and maintenance activities. It also stipulates how often such activities are required to be completed. Requirements are provided for impairment procedures, notification processes, and system restoration. This type of information, where incorporated into a building maintenance program, enhances the demonstrated favorable experience of all water-based fire protection systems.

The second edition incorporated several improvements that reflected the initial experience with the standard. A new chapter was added that addresses obstructions in pipe as well as appropriate corrective actions.

The third edition refined testing requirements and frequencies and provided additional guidance for pre-planned impairment programs. The document scope was expanded to include marine systems.

The fourth edition continues to refine testing frequencies for water-flow devices and evaluation of the annual fire pump test data. This edition also includes additional information regarding evaluation and test methods for microbiologically influenced corrosion (MIC).

Administrative issues

The proposed fifth edition includes additional enhancements. For example, the Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems is recommending that the standard be revised to extend the period of record retention from one year to five years. The new text states "Subsequent records shall be retained for a period of five years after the next inspection, test, and maintenance required by this standard."

The Technical Committee is recommending the change because members believe the present requirement of one year is not long enough to establish a sufficient database to determine a pattern of degradation, especially if the original design records are available.

The Technical Committee is also suggesting that the areas dealing with "Recalled Products" be enhanced. Currently, there is Annex material (A.4.1.4) that states recalled products should be replaced or remedied. Remedies include entrance into a program for scheduled replacement. The Technical Committee is recommending the addition of a new section 5.2.1.5 with Annex note A.5.1.2.5. The new section reads "5.1.2.5 Devices that have been the subject of a manufacturer's recall or replacement program shall be replaced or entered into a program for scheduled replacement."

The new Annex material states "A.5.1.2.5 The system inspection form shall indicate the date and location that registration was made by the owner with a manufacturer's device replacement program." The Technical Committee believes that sprinklers and devices that were recalled by the manufacturer should be replaced. This proposal will allow for the planned replacement of sprinklers and devices that are part of an ongoing replacement program, but is intended to require the immediate replacement of sprinklers or devices for which a replacement program has expired.

Definitions

In Chapter 3, the definition of "Qualified" now reads "A competent and capable person or company that has met the requirements and

training for a given field acceptable to the AHJ." "Deficiency" is now defined, as the application of the component is not within its designated limits or specifications.

The Technical Committee also changed the definition of "Impairment." The new definition is "A condition where a fire protection system or unit or portion thereof is out of order, and the condition can result in the fire protection system or unit not functioning in a fire event."

MIC

The Technical Committee has recommended revising text in Chapter 13 to read: "13.2.1.2 Tubercules or slime, if found, shall be tested for indications of internal corrosion, including microbiologically influenced corrosion (MIC)."

PERFORMANCE-BASED TESTING IS ATTEMPTED IN THE CURRENT VERSION OF NFPA 25 ON A LIMITED BASIS VIA THE "EQUIVALENCY" OPTION. HOWEVER, THE GUIDANCE NECESSARY IS NOT PROVIDED IN THE STANDARD.

The Technical Committee is recommending the change because the service life of a fire protection system (FPS) is directly related to the rate of corrosion and how long a system can effectively operate before corrosion compromises the system's ability to perform as intended. MIC is a process that accelerates and concentrates corrosion in FPS. By definition, MIC must influence another form of corrosion.

The Technical Committee also examined so-called "Impairment Procedures" for fire protection systems. According to the Technical Committee, the present impairment procedures in Chapter 14 are so stringent that they are virtually ignored by all parties. By increasing the time requirement to 10 hours, the implementation of 14.5.2 would be more reasonable. The new language reads: "14.5.2 (3) …Where a required fire protection system is out of service for more than 10 hours in a 24-hour period, the impairment coordinator shall arrange for one of the following:

- (A) Evacuation of the building or portion of the building affected by the system out of service;
- (B) An approved fire watch;
- (C) Establishment of a temporary water supply; and
- (D) Establishment and implementation of an approved program to eliminate potential ignition sources and limit the amount of fuel available to the fire."

System deficiencies

To provide users with a better understanding of system deficiencies, the Technical Committee has recommended adding a new section to NFPA 25. This new section provides information that is more detailed. The new section to the Annex material for NFPA 25, A.4.1.4.1, reads as follows:

"A.4.1.4.1 System deficiencies not explained by normal wear and tear, such as hydraulic shock, can often be indicators of system problems and should be investigated and evaluated by a qualified person or engineer. Failure to address these issues could lead to catastrophic failure. Examples of deficiencies that can be caused by issues beyond normal wear and tear are as follows: Pressure Gauge 1. Gauge not returning to zero; 2. Gauge off scale; 3. Gauge with bent needle.

"Support Devices: 1. Bent hangers and/or rods; 2. Hangers pulled out/off structure; 3. Indication of pipe or hanger movement such as: a. Hanger scrape marks on pipe, exposed pipe surface where pipe and hangers are painted b. Fire stop material damaged at pipe penetration of fire rated assembly. Unexplained System Damage 1. Unexplained system damage beyond normal wear and tear; 2. Bent or broken shafts on valves; 3. Bent or broken valve clappers; 4. Unexplained leakage at branch lines, cross main or feed main piping; 5. Unexplained leakage at close nipples; 6. Loose bolts on flanges and couplings. Fire Pump 1. Fire pump driver out of alignment; 2. Vibration of fire pump and/or driver; and 3. Unusual sprinkler system piping noises (sharp report, loud bang)."

Performance-based testing

Performance-based testing is attempted in the current version of NFPA 25 on a limited basis via the "equivalency" option. However, the guidance necessary to support this process is not provided in the standard. This requires a significant undertaking by both the AHJ and the user in order to optimize the benefits of implementing a performance-based program if desired.

The new section in Chapter 4 includes the following information:

4.5.1.1 Testing

4.5.1.1.1* As an alternate means of compliance, subject to the AHJ, components and systems shall be permitted to be inspected, tested and maintained under a performance-based program.

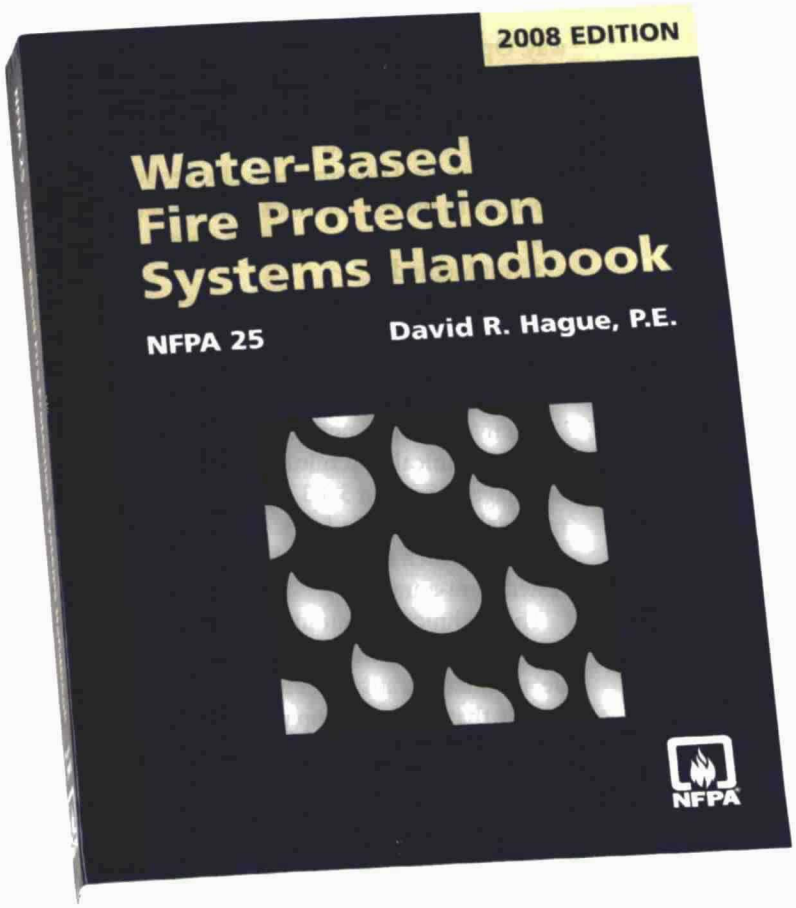
The Annex material reads as follows:

A.4.5.1.1.1

- Attributes for consideration of frequency adjustment:
- – System Component preventive maintenance programs
- – System / Component repair history
- – Building / Service conditions

The Technical Committee also offers factors to consider in transition to performance based. These factors include:

- Past System / Component Reliability – have problems routinely been identified during the performance of the prescriptive test requirements of 4.5.1.1, or have systems consistently performed with minimal discrepancies noted?
- Do the recurring resources expenditures necessary to implement the prescriptive test requirements in 4.5.1.1 justify the consideration of conducting the detailed analysis needed to support a performance-based testing program?
- The increase in administrative burden of implementing documenting and monitoring a performance-based program.



New chapter

The Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems is also recommending the addition of a new Chapter 12 "Water Mist Systems" and the renumbering of current Chapters 12 through 14 as Chapters 13 through 15. The new chapter, "Water Mist Systems," will extract Chapter System Maintenance from NFPA 750, *Water Mist Fire Protection Systems.* This new chapter is being added because the Technical Committee believes inspection, testing, and maintenance requirements for all water-based fire protection system should be contained in NFPA 25.

Dry-pipe systems

The Technical Committee is also recommending revising the text of A.12.4.4.2.2.2 by adding a new paragraph at the end of the existing text, as follows:

"A full flow trip test generally requires at least two individuals in communication with each other, one of whom is situated at the dry pipe valve while the other is at the inspector's test. A full flow trip test is conducted as follows: (1)...(9) The dry pipe valve and quick-opening device are reset, if installed, in accordance with the manufacture's instructions, and the system is returned to service. For dry-pipe systems that were designed and installed using a computer calculation to simulate multiple openings to predict water delivery time, a full-flow trip test from a single inspector's test connection should have been conducted during the original system acceptance and a full flow trip test from the single inspector's test should continue to be conducted every 3 years. The system is not required to achieve water delivery to the inspector's test connection in 60 seconds, but comparison to the water delivery time during the original acceptance will determine if there is a problem with the system.

The Technical Committee believes that guidance is needed on how to test the new dry-pipe systems that are being designed and installed using computer programs to calculate the water delivery time to multiple openings. There will be no way to test these systems, as most do not have multiple orifices to open during a manual trip test. Those systems that do not have manifolds with multiple openings should not be required to be tested that

way. Opening a single inspector's test connection should be sufficient for determining whether or not the system still performs as it did when originally installed and tested.

The Technical Committee is also recommending revisions to the test methods requirements for dry-pipe systems. The new language states:

- Test Methods:
  - A pressure test at 40 psi for two hours. Cannot lose more than 3 psi.
  - Isolate the system air supply and test at normal air pressure for four hours. If the low air alarm activates in this period, repairs must be made.

The Technical Committee also added the language to Section 5.3.3 Alarm Devices. The new material contained in 5.3.3.2 states "Vane type and pressure switch type waterflow devices shall be tested semi-annually."

The Technical Committee is also recommending that the requirements for the main drain test be modified because the current language says simply that a "large" drop normally is indicative of a dangerously reduced water supply..." so "large" needs to be quantified. In addition, the owner needs to be directed to find and fix the problem. To meet these issues, the Technical Committee has recommended revising the text to read as follows: "12.2.6.2 When there is a 10-percent reduction in full flow pressure when compared to the original acceptance test or previously performed tests, the cause of the reduction shall be identified and addressed or repaired.

"12.2.6.2.1 The system shall be considered impaired until the water supply is evaluated and deficiencies corrected and restored to normal."

Other issues

The Technical Committee determined that additional guidance is needed in the standard on what steps are required in testing the antifreeze solution in an antifreeze system. Since concentrations can be higher at different points in the system, it is important to test more than one location. The hazards of too little antifreeze are obvious. While too much antifreeze may have the same potential to freeze, few inspectors are aware of this fact. Too much antifreeze might also present problems due to flammability of the product being used, as most antifreeze solutions are a Class IIIB liquid. Additionally, larger systems should be tested at multiple points on the system to verify concentrations.

It is the intent of the Technical Committee to require a system to be drained and refilled with antifreeze when a test point indicates an incorrect freeze point.

The Technical Committee has recommended adding a new section, 5.3.4.3., which reads: "5.3.4.3 The antifreeze solution shall be tested at its most remote portion and where it interfaces with the wet-pipe system. When antifreeze systems have a capacity larger than 150 gallons, tests at one additional point for every 100 gallons shall be made. If the test results indicate an incorrect freeze point at any point in the system, the system shall be drained, the solution adjusted, and the systems refilled. For premixed solutions, the manufacturer's instructions shall be permitted to be used with regard to the number of test points and refill procedure."

In addition, when it comes to sprinkler inspection, the Technical Committee has recommended a new Annex section, A.5.2.1.2, discussing the 18" clearance required for standard spray sprinklers. The Technical Committee has also added tables for each system's chapter to provide guidance on the action following component repair or replacement.

The Technical Committee has also added a new Section 12.5.4 and associated Annex material that relate to master Pressure Reducing Valves (PRVs). The new section calls for weekly inspection, quarterly (partial) flow testing, and a requirement that calls for an annual full-flow test.

At the *WSC&E* in June, the NFPA members attending the Technical Report session will review the changes proposed for NFPA 25. A new step in the NFPA code development process will set the agenda for this meeting by requiring individuals who wish to propose amendments at this meeting to submit advance notice of their intentions. The motions that can be made to amend the technical committee reports are limited by NFPA regulations. Individuals who have submitted a notice of intent to make a motion (NITMAM), and where the motion has been certified to be a proper motion under NFPA regulations, will be allowed to present their motion in person at the meeting. These certified motions, posted in advance of the meeting, set the meeting agenda.

Individuals who submitted a proposal or comment could make a motion to have their proposal or comment (or an identifiable part) accepted during this session. Those present may also make certain other motions. After consideration of each amending motion, the members present vote on the amended document, and it moves on to the Standards Council.

JOHN NICHOLSON is the executive editor of NFPA Journal. He can be reached at jnicholson@nfpa.org.

Water OR Chemical?

2 Ways to Suppress... 1 Way to Release!

POTTER PFC-4410-RC

PFC-4410-RC FEATURES:

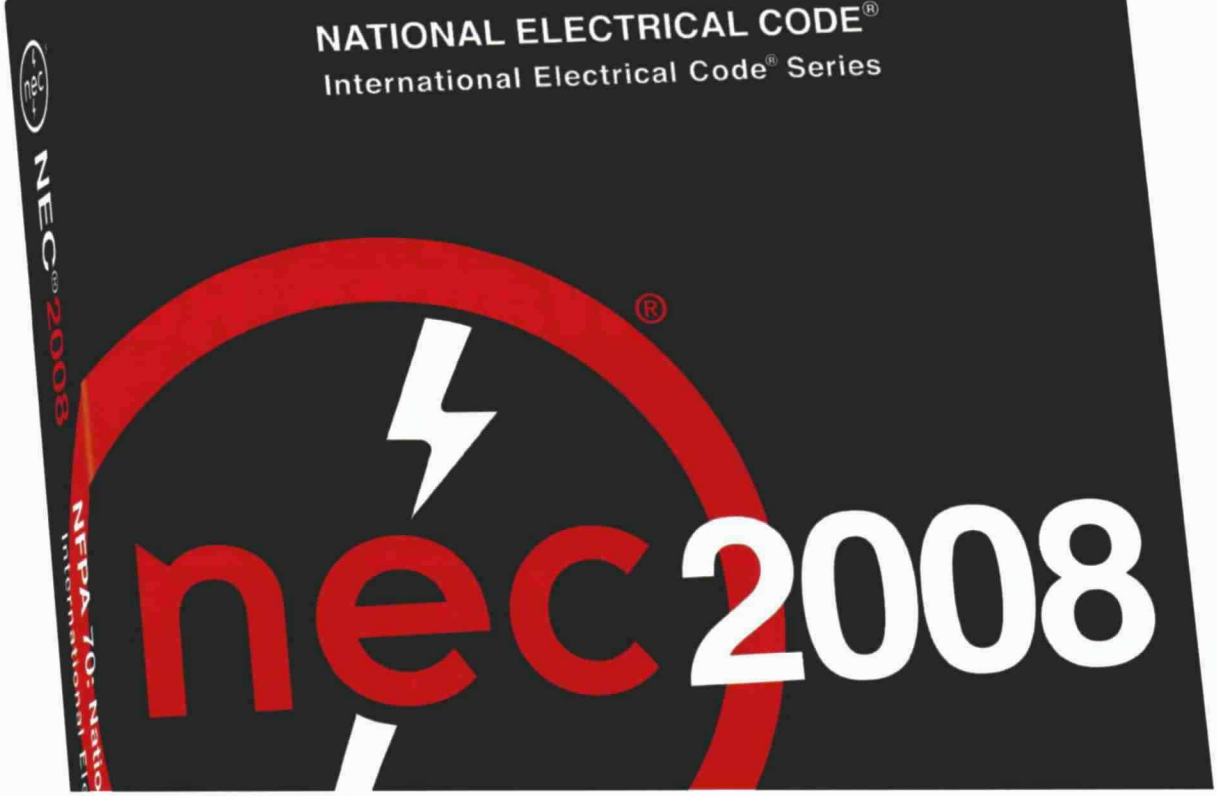
- 5 Class B initiating zones
- 4 programmable Class B outputs
- Compatible with 3500' of Linear Heat Detection per zone
- Single or double interlock
- 20 pre-configured programs
- 40 event history buffer
- One man walk test

You've been using the **Potter PFC-4410** releasing panel to control water-based systems for years. You know it, you use it, you love it. But what do you use for **AGENT RELEASING**? A totally different panel with a completely new interface? Why bother? Just use the **NEW Potter PFC-4410-RC**! This innovative plug and play panel is exactly like the Potter PFC-4410 you are already familiar with, but is now listed for **BOTH WATER AND CHEMICAL RELEASING**. Same panel, same interface, more applications.

POTTER
The Symbol of Protection

Circle 031 on card or visit www.nfpa.org/product-info-journal

800.325.3936 www.pottersignal.com



NEC® Code Changes

NFPA's electrical staff reviews the proposed changes to the *National Electrical Code*®. By John Nicholson

For the proposed 2008 edition of NFPA 70, *National Electrical Code*® (*NEC*®), the Technical Correlating Committee (TCC) received 3,668 proposals and 3,206 comments during the revision cycle. The sheer number of proposals and comments is a healthy indicator that the NEC is widely used and a constantly evolving document. But what are the most important changes?

To provide members with an overview, we sat down with the NFPA Electrical Staff and requested their view of the proposals. Despite the large volume of input on this important code, the staff that deals with the NEC has synthesized all that information into five major topic areas that comprise the most significant changes proposed for the 2008 edition.

"First and foremost is always the mission of the NEC—that is, the practical safeguarding of persons and property against the hazards rising from the uses of electricity," says Jeff Sargent, a senior electrical specialist and staff liaison to numerous code-making panels. "To that end, we've seen changes that are going to revise GFCI (ground fault circuit interrupter) protection and expand AFCI protection (arc-fault circuit interrupter)."

GFCI and AFCIs

For more than 30 years, GFCIs have been a primary source of electrical shock protection in the home. According to Sargent, the *NEC* has led that evolution, and today GFCIs in many places go in voluntarily. "They have become almost automatic. When there is a shock hazard, GFCIs go in," he says. "If GFCIs had never been integrated in the NEC, you would not have such a wide use of them."

"They are certainly a success story," adds Mark Earley, P.E., Assistant Vice President for Electrical Engineering and staff liaison to the TCC for the NEC.

The proposed changes would require GFCIs in areas beyond the living area. For example, basements with laundry sinks that have receptacles within 6 feet of the sink are required to have a GFCI. This was achieved by the Code-Making Panel that went through the *NEC* and recommended the elimination of several exceptions to the GFCI requirements. The elimination of the exceptions strengthened the requirements but also reflected the increased use of GFCIs in places outside of the home. Furthermore, the exceptions were eliminated based on the substantiation that the

protection afforded by a GFCI is not related to the location of the receptacle.

The Code-Making Panel also recommended changes to the introductory clause of the Section 210.8(B). These changes note that GFCIs are needed in "Other than Dwelling Units." For example, commercial, educational, institutional, or industrial laboratories and kitchens in those same settings and other non-residential kitchens are to have GFCIs.

"The second piece of this, as far as homes, is the expanded AFCI protection (in Section 210.12)," says Sargent. "They are limited right now to dwelling unit bedrooms, but we will see an expansion of the fire protection feature into all the living areas of a dwelling unit. This is a significant expansion."

Beginning with the 1999 edition of the NEC, AFCI protection was required in bedrooms. During the 2005 revision cycle, the Code-Making Panel acknowledged the level of protection AFCIs provided.

In the 2008 revision cycle, the Code-Making Panel is recommending AFCIs in all living spaces. This recommendation is based on research done by groups that include Consumer Product Safety Council (CPSC) and the National Association of State Fire Marshals (NASFM). These groups found that the AFCI is a beneficial safety device for saving lives, property, and the environment from unwanted electrical arcing. "There is strong support from organizations that support fire-safety goals," says Earley.

The Code-Making Panel is also recommending that special tamper-resistant receptacles be installed in homes.

The recommendation is to add text to read as follows:

"406.11 Tamper-Resistant Receptacles in Dwelling Units. In all areas specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles."

The panel recommends that Section 210.52 specify the areas in dwelling units where receptacles shall be installed and the proposal references those areas.

Additionally, the panel is concerned about the possible increased insertion force required for our aging population. The panel requested data concerning the amount of force necessary to insert a plug into the shutter and the amount of force necessary to fully insert a plug into a tamper-resistant receptacle. The new receptacles also prevent small children from inserting any sort of object into the outlet.

"This (change) is based on burn incidents involving children who have inserted something into the receptacle. The tamper-resistant receptacle is superior in technology to just the plastic inserts that are used. This is present at the receptacle all the time," says Sargent. "It is ever vigilant."

"This has to see the insertion of the two blades as opposed to a child coming along with a screw driver or paper clip and poking it through. It has to see a standard plug coming into it," says Earley.

Big rigs

The Code-Making Panels also examined proposals aimed at meeting the needs of NEC users. Two examples of this are proposals for Article 626, Electrified Truck Parking Spaces, and Article 708, Critical Operations Power Systems.

Article 626 is a proposed new section within the NEC. Presently there's a need for drivers of large rigs to have an electrified parking space. This will allow the driver to connect and power the essential equipment the driver needs. This can include the refrigeration unit on the truck as well as home comforts such as cable television and Internet access.

"This is to keep essential systems going. Whether it is for creature comforts for the driver in the sleeper cab or to keep the refrigeration equipment going on the truck," Sargent says.

Specifically, the provisions of this article cover the electrical conductors and equipment that connect trucks and transport refrigerated units to a supply of electricity, and the installation of equipment and devices related to electrical installations within an electrified parking space.

In recent years, the U.S. Environmental Protection Agency (EPA) has been cracking down on the transportation industry's practice of allowing their trucks to idle and maintain power rather than shutting down the rig while parked at a truck stop. The idling not only causes air pollution, it also consumes large quantities of fuel. The NEC proposal standardizes the act of connecting at a truck stop. The proposal calls for electrical safety guidelines for what are substantial electrical structures.

"So if the truck is not running, there needs to be a way to supply the truck with power. This article provides guidance on the setting up of systems, the actual connections between the trucks and the electrical system—it provides a complete set of requirements," says Sargent.

The addition of Article 626 provides a standardized approach to connecting trucks to the needed services. Presently, this is not the case. "So truckers who go coast to coast can connect in California and then on the East Coast using the same configuration. That is one of the goals of this new set of rules," Sargent says.

Article 626 also includes guidance on

telephones, cable television, and the Internet. "This gives the truckers more of a feeling of being at home," says Earley.

The trucking industry is supportive of Article 626 because it ultimately brings down costs. By following the requirements in Article 626, the trucks will not be idling as long as they do now and this will save on fuel costs. "The fuel costs are phenomenal for those trucks to be sitting there idling, particularly considering the prices of today's diesel fuel," says Sargent. "So the NEC is helping the environment in this case. The primary objective, of course, is safe electrical interface for the users. It has the secondary effect of helping the environment by reducing pollution and reducing fuel consumption."

According to Earley, word of the availability of truck stops with these new electrical systems is spreading. "Satellite radio systems are trying to draw truckers' attention to it and to encourage the trucking companies to participate," he says.

CRITICAL OPERATION POWER SYSTEMS ARE THE RESULT OF OUR CHANGING SOCIETY.

Sargent notes that the average truck stop has high use and needs a substantial electrical system to support traffic. "This not dragging an extension cord out from someplace and plugging it in to a truck," he says.

The stations also provide heating and cooling systems directly to the trucks. "There were attempts to do this previously but there has not been any standardization until now," Cloutier says.

"It is important to say that we are providing tremendous safety to the truckers as they switch from parking at a space where there is no electricity. The NEC is providing all the safety right to the driver as well as to the product that he is carrying. We now have a national standard on how to plug a truck in safely and achieve all these other things," Sheehan says.

"This is not requiring the truckers to go out and do their own wiring," says Earley.

"A state is not going to require that all truck stops connect trucks to an electrical system. What it does say is when they do provide this service, it must follow the NEC," Sheehan adds.

Critical power systems

Article 708 is a proposed new section within the NEC that applies to the electrical installation, operation, supervision, and maintenance of critical operations power systems. These systems consist of circuits and equipment intended to automatically supply, distribute, and control electricity to designated operations in the event of disruption to elements of the normal system intended to supply, distribute, and control power essential for continuity of vital operations. Support for the proposal came from the U.S. Department of Homeland Security.

Critical operations power systems are those systems classed as critical by municipal, state, federal, other governmental agency having jurisdiction, or by facility engineering documentation establishing the necessity for such a system.

"Critical operations power systems are a result of our changing society and a response to some of the unfortunate outcomes of the natural disasters that have recently occurred," Sargent says.

This addition to the NEC is in response to natural disasters such as Hurricane Katrina. During Hurricane Katrina, there were widespread power outages to residences, businesses, and those facilities that could not afford to be without power. Those include health care facilities and security installations. During Hurricane Katrina, for example, there were numerous instances of standby systems that did not operate because they were not designed for flooded conditions.

Many critical systems failed during Hurricane Katrina. "Whether it was a lack of maintenance or just the overall infrastructure could not withstand or was not designed to operate in such a flooded condition. This is also in response to some of the Homeland Security issues relating to terrorism," says Sargent.

Ironically, the first meeting of the task group that reviewed the proposal was on the same day Hurricane Katrina hit New Orleans. "The good news that morning was: A city had survived and it looked like it was in good shape. By afternoon, the levees had breached and things were not so good," Earley recalled.

Traditionally, emergency systems are designed to get people out of buildings. Today we are looking at defending in place. This approach requires an enhanced system to ensure that power operations continue during and following a natural or man-made disaster. The new article allows the AHJ to determine the application and needs for a more robust standby system. The additional material includes specific requirements for wiring.

"What Article 708 does is provide an enhanced electrical system for either an entire building or

facility or for certain portions that are designated as critical to operation, whether it is for national security or a health care facility or a financial institute. The NEC does not mandate which facilities have to integrate this; it is going to be an AHJ-type of decision. Once the AHJ has deemed there is a need for a critical operations power system to be integrated into the facility, Article 708 provides the guidance," Sargent says.

The new article takes some of the previously proposed material and builds on it. The goal is to deal with the issue of redundancy with new minimum requirements for systems that have to operate. It also provides for levels of redundancy, a hardened wiring system, and specific prescriptive requirements on the types of wiring methods. "It takes what we have had in the past for emergency systems and builds on it," Sargent says.

"This is not your typical minimum standard. It is setting a ***new*** minimum when a system is critical and has to continue operating despite what is happening outside," says Earley.

There is also a connection to NFPA 1600, *Disaster/Emergency Management and Business Continuity Programs*, particularly the section dealing with facility assessment portion.

However, while NFPA 1600 stresses the importance of business continuity, Article 708 is for those facilities that have to stay operational during any sort of disaster, not just after a disaster. To give Article 708 an authoritative stance, the Code-Making Panel worked with individuals and organizations that have first-hand experience with disaster. Those included officials from Florida with experience in hurricane preparedness training and officials from California with experience in earthquake preparedness. There were also representatives from the generator manufacturing and transfer switch communities, and it was all chaired by Donald Bliss, Director, National Infrastructure Institute's Center for Infrastructure Expertise. He is also a member of NFPA's board of directors.

"When we put this committee together, we really made sure we had people who had a wide variety of experience," Earley says. "We could not have had a better group of people put together to deal with this kind of a problem."

A fire-safety question came up during the discussion that centered on storage of fuel for generators that must be operational during and after a disaster. Article 708 provides guidance on fuel storage as well as planning for fuel storage needs. "The question becomes 'I have a generator operating, now how do I get fuel to it?' This is the kind of thing you need to plan for, and some of that planning gets to be difficult when the roads go away because they have collapsed or flooded. This requires a good operating plan for when you are up and running," Earley says.

Article 708 also references NFPA 110, *Emergency and Standby Power Systems*; NFPA 99, *Health Care Facilities*; NFPA 101®, *Life Safety Code®*; as well as NFPA 1600.

Increased worker safety

The proposed 2008 NEC also continues to build on the installation requirements that allow for NFPA 70E, *Electrical Safety in the Workplace, Compliance and Worker Safety*. The inclusion of references in the NEC to NFPA 70E is needed because NFPA 70E requires guidelines for worker safety and the NEC is the installation standard for the requirements in NFPA 70E.

"I was glad to see the NFPA 70E piece because it shows you the inter-relation between the worker safety standard and the installation standard. The installation standard, over the last several cycles, has seen a renewed focus on looking at worker safety by making the installation safer for the worker," Sargent says. "To comply with NFPA 70E, you have to have an initial installation that helps you."

The upsurge in NFPA 70E use has fueled the need for installation requirements to comply. Section 110.16, which is an existing requirement, expands the equipment covered by the NEC. This is a marking requirement on equipment to indicate that there is a hazard if you work on it while it is energized. "This is part of the whole changing of the culture in the industry to make people more cognizant of a hazard. This is happening on the NEC front. It is happening on the NFPA 70E front. It is happening on the OSHA front. We are going to change the culture and make people think safely when it comes to working on equipment," says Sargent.

Specifically, "110.16 Flash Protection. Electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are in other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential electric arc flash hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment."

The panel revised the proposal to only include one- and two-family dwelling occupancies rather than all dwelling occupancies because one- and two-family dwellings provide a reasonable demarcation for occupancies where arc flash hazards may exist. The panel also added the words

"Electrical equipment, such as" to the sentence. This change eliminates the need to add equipment to the list and correlates with the requirements in 110.26. It also allows the AHJ flexibility in enforcement. As currently worded, there is no marking requirement for a 1600A fusible wall switch.

The Code-Making Panel also expanded on personnel doors leading into rooms containing electrical equipment in Section 110.26(C). The new language calls for specific dimensions and the installation of panic hardware that would allow a person with burned or injured hands to exit a room.

Specifically, the section is revised as follows:

"NEC 110.26(C) Entrance to Working Space.

(2) Large Equipment. For equipment rated 1200 amperes or more and over 1.8 m (6 ft) wide that contains overcurrent devices, switching devices, or control devices, there shall be one entrance to the required working space not less than 610 mm (24 in.) wide and 2.0 m (6 1/2 ft) high at each end of the working space. The removal of the 6-foot limitation has a significant impact on equipment installation and the required working space."

WITH THE ADDITION OF NFPA 70E, THERE'S AN INTEGRATED SET OF DOCUMENTS FOR WORKER SAFETY.

The panel accepted the substantiation from two comments supporting that the issue is related to arc flash, which in turn is driven from the size/rating of the equipment. The rating of the equipment is NOT the driving factor if the panel is using arc-flash to justify this change. NFPA 70E addresses arc-flash protection and nowhere in that document will you find that the rating of the equipment plays such a role.

There is also an overall improvement to the "lockable disconnecting means" requirements found in the NEC. One of the benchmark safety requirements in NFPA 70E is the lockout/tagout provision. However, if the equipment that needs to be locked can't be locked, complying with NFPA 70E would be difficult. The changes to the NEC require equipment to have the means to be locked out as part of the installation.

There are close to 25 different places in the NEC where they went in and either revised language or added language to ensure that the equipment has a means to stay locked and that the means stays with the equipment at all times.

"In other words, it is part of the electrical installation and not something that could be added on. This makes a distinction between the portable lockout devices and something that stays part of the installation," Sargent says.

For example, the Code-Making Panel is recommending that access doors or detachable access panels be employed for internal access to heating equipment. Access doors to internal compartments containing equipment employing voltages from 150 volts to 1000 volts ac or dc shall be capable of being locked closed or shall be interlocked *to* prevent the supply circuit from being energized while the door(s) is open.

With the addition of the installation requirements that allow for NFPA 70E compliance, there is now an integrated set of documents for worker safety. They are NFPA 70E; NFPA 70B, *Recommended Practice for Electrical Equipment Maintenance;* and the NEC. Now there is guidance for safety, maintenance, and installation.

Grounding and bonding

After a great deal of debate in the 2005 revision cycle, the Technical Correlating Committee decided to appoint a task group to examine grounding and bonding. This approach was considered a "big picture" approach, and the 2008 edition implements the recommendations of the task group.

"This was truly a two-cycle effort that took six years to accomplish," Sheehan says.

The result is technically accurate and separate definitions for the terms "ground" and "bond." The language is carried through the document. Back in the 2005 revision, it was proposed that the terminology be completely changed. For the 2008 edition, the definitions were revised. The change runs from the definitions section to the index.

"When you have a book that's over 100 years old, sometimes these two terms are used synonymously. You say 'grounding' in one place and 'bonding' in another place. What this does is put everything into a technically accurate context. It is correlated throughout the document, yet the impact on the end user is going to be seamless. We did not change the terminology," says Sargent.

So, an "equipment grounding conductor" is still an "equipment grounding conductor" although the definition has changed so it more accurately reflects what it does.

This proposal benefits new students because the terms are easier to learn and comprehend. The seasoned users of the Code now have a complete definition they can refer to, and the AHJ knows

exactly what to expect when using the terms. Those involved in the two-cycle approach believe it was the right approach.

"This is an added benefit to the students of the Code. This will be much easier to comprehend," says Sheehan.

It is proposed that the present definition for "bonding" be rewritten to apply generally throughout the NEC and simply describe its purpose and function.

The purpose of bonding is to connect two or more conductive objects together to:

(1) Ensure the electrical continuity of the fault current path, and

(2) Provide the capacity and ability to conduct safely any fault current likely to be imposed, and

(3) Minimize potential differences (voltage) between conductive components.

The intent of the term bonding is to convey that normally non-current-carrying conductive materials likely to become energized must be electrically connected together and to the supply source in a manner that establishes an effective fault current path. "Normally non-current-carrying conductive materials likely to become energized" include:

(1) Conductive materials enclosing electrical conductors or equipment, or

(2) Forming part of such equipment, or

(3) Other electrically conductive materials and equipment that may present a shock hazard.

There are conditions in the Code where specific bonding is required solely to minimize the difference of potential (voltage) between conductive components.

It is proposed that the present definition for "ground" be rewritten simply to describe its function. The purpose of ground is to serve as a common electrical potential reference for an electrical system or equipment. The intent of ground is to describe the earth for premises wiring systems.

The phrase "some conducting body that serves in place of the earth" in the present definition of "ground" is concluded to leave Code users wondering what that conducting body serving as a substitute for the earth really is.

Vehicles such as airplanes and automobiles have a metal frame that is often used as a reference for the onboard electrical wiring. It is often referred to as "ground." These types of installations are not covered by the rules of the NEC as indicated in Section 90.2(B). Where the NEC refers to "ground," it implies a connection to the earth and not something that serves as an earth substitute.

"Intuitively, we knew what it meant but we should not have to rely on intuition for a technical document," says Sargent.

"It is pinpoint accurate now, as opposed to 'good enough'," Sheehan adds.

More user-friendly

One of the directives of the correlating committee is to continually make the NEC a user-friendly document. Other examples are the index, which now has keywords at the top of each page. Changes are now shown in grey highlights, not marginal lining. This makes it easier to see what is new in each edition. This is considered helpful from an adoption standpoint.

"When an adopting jurisdiction wants to know what words are actually different in the new edition," Earley says.

"The continuing education market will also have instant recognition of the changes," Sheehan adds.

More than any other NFPA code or standard, the NEC is used for taking tests, and these usability changes make it easier. "We have gotten nothing but positive feedback on those usability changes," Sargent says.

Technical Report Session

At the NFPA *World Safety Conference and Exposition®, (WSC&E®)* in June, the NFPA members attending the Technical Report session will review the changes proposed for NFPA 70. Individuals who submitted a proposal or comment could make a motion to have their proposal or comment (or an identifiable part) accepted during this session. Those present may also make certain other motions. After consideration of each amending motion, the members present vote on the amended document, and following a further review and ballot of successful amendments by the applicable panel and TCC, it moves on to the Standards Council.

Also at this year's *WSC&E*, there are pre-conference seminars and educational sessions that address more of the changes to the NEC. For example, a pre-conference seminar is being held on Saturday, June 2 that examines the changes to the NEC. There is also the necforum™ planned again this year. This is a specialized track in the educational sessions that highlight issues related to the electrical industry. This year, 12 educational sessions are planned and include utility fires, changes to NFPA 70E, and working in health care facilities. For more information and to register for the WSC&E, visit www.nfpa.org/wsce.

JOHN NICHOLSON is the executive editor of NFPA Journal. He can be reached at jnicholson@nfpa.org.

Mass Notification—Where Is It Heading?

Mass notification is in the 2007 Edition of the *National Fire Alarm Code*®. By Raymond A. Grill, P.E., FSFPE

While the term "mass notification" seems new to many people, mass notification systems have been part of our lives without our realizing it. Mass notification systems integrate fire, security, and communications systems to provide emergency notification to individuals within a building or multiple buildings, or over a much larger area covering many acres or several miles. The systems that we are most familiar with are the ones that have been in use to alert us of pending natural occurrences that can develop to be threats to life and property. Weather events are the most common.

Some regions that are prone to these events have community-wide exterior notification appliances that generate low frequency alert tones that can be heard over large areas to warn a community of potential danger. Weather or flood warnings that crawl along the bottom of your television screen are a type of mass notification.

Industrial facilities handling dangerous chemicals have sophisticated systems that can automatically notify communities of potential

Illustration by Oleksandr Bondarenko

danger in the event of accidental discharges. Severe weather warnings on your television or radio are also mass notification alerts. Mass notification can include various media.

"Mass Notification—Where Is It Heading?" is the title of a Spotlight Session at this year's *World Safety Conference and Exposition®* (*WSC&E®*). This session will review the current thinking of the task group and discuss the proposed direction for future changes for mass notification systems. It is sponsored by the Electrical Section and is scheduled for Tuesday, June 5, from 4:15 p.m. to 5:45 p.m. For more information and to register for the *WSC&E*, visit www.nfpa.org/wsce.

This article discusses the changes that have been made to the 2007 edition of NFPA 72®, *National Fire Alarm Code®*, to allow fire alarm systems to be used for mass notification and the guidelines that have been included for the design and installation of mass notification systems.

Why mass notification in NFPA 72?

The June 25, 1996, attack by terrorists on the Khobar Towers housing complex in Dhahran, Saudi Arabia, was a wake-up call for the Department of Defense (DoD) that improvements in alarm and evacuation systems were necessary and that plans and procedures are necessary to effectively respond to threats.

Because of this event and other threats, in July 2002 the DoD established new antiterrorism standards for new construction. These standards required that mass notification systems be installed in almost all new or renovated DoD facilities. While these standards mandated the incorporation of mass notification systems, they did not provide any guidance on how to provide it. To address this need, *Uniform Facility Criteria 4-021-01, Design and O&M: Mass Notification Systems* was issued in December 2002 to provide performance criteria that could fulfill the requirements of the DoD antiterrorism standards.

While UFC 4-021-01 provides criteria for the design of mass notification systems, it was felt that there was a significant resource available in many buildings that could provide for mass notification but was not being utilized due to code restrictions. That resource is the building fire alarm system.

In June 2003 the Air Force Civil Engineering Support Agency petitioned NFPA to develop a standard for Mass Notification. Because of the petition, the Standards Council of NFPA directed the TCC of the Signaling Systems project to address the request. The TCC established a Task Group (TG) on Mass Notification in early 2004 that included a very broad base of interests including engineers designing systems, users, enforcers, insurers, manufactures, and installers.

Mass notification criteria in NFPA 72

The TG had three formal meetings in 2004 as well as many ad hoc meetings focused on specific issues. Their work resulted in numerous proposals to modify the *National Fire Alarm Code* to provide guidance on mass notification system design and to allow fire alarm systems to be used as part of a mass notification system.

These proposals were acted on in the normal code development cycle leading up to the creation of the 2007 edition of NFPA 72.

Basic changes

The requirements of NFPA 72 prior to the 2007 edition were specific to fire alarms and the code language reflected that intent. To address the potential broader application of NFPA 72 requirements, a few basic changes were made. First, the scope of the document was expanded to apply not only to fire alarm equipment, but also to "emergency warning equipment." The addition of emergency warning equipment expands the scope of NFPA 72 to include mass notification. Sections of the code that are intended to have a broader application than just to fire alarm systems have been revised to remove the word "fire" from the language to allow flexibility in application. These two basic modifications removed many of the barriers that prevented the use of fire alarm systems for mass notification.

Definitions

A new definition of a mass notification system was added. It is defined as "[a] system used to provide information and instructions to people, in a building, area site, or other space." Annex material has also been added to further explain the features and functions these systems may have. A mass notification system may use intelligible voice communications, visible signals, text, graphics, tactile, or other communications methods. The system may be used to:

- Initiate evacuation or relocation, or to provide information to occupants.
- Fire emergencies, weather emergencies, terrorist events, biological, chemical or nuclear emergencies or any combination of these.
- The system may be automatic, manual, or both.
- Access to and control of the system may be from a single, on-site location or may include multiple command locations, including some remote from the area served.

- Systems may be wired, wireless, or some combination of the two.

A definition has also been added to address alerting occupants in exterior open spaces such as campuses, neighborhood streets, cities, towns, or communities. This type of signaling is defined as wide area signaling.

Design guidance

In order to provide guidance on the design and installation of mass notification systems, a new annex has been included in NFPA 72 as Annex E. While annex material is not considered part of the enforceable language of the code, annex material does provide guidance and information. This new annex is organized in a format that is consistent with the current format of NFPA 72.

Introduction

The introduction contains the scope of the Annex, which states, "Annex E covers the application, installation, location, performance, and maintenance of mass notification systems."

ANNEX E COVERS THE APPLICATION, INSTALLATION, LOCATION, PERFORMANCE, AND MAINTENANCE OF MASS NOTIFICATION SYSTEMS.

The purpose states that "... systems covered under Annex E are for the protection of life by indicating the existence of an emergency situation and instructing the occupants of the necessary and appropriate response and action."

Fundamentals

The section on fundamentals addresses equipment listing and adherence to manufacturer's installation instructions. Qualifications of system designers and installers are also addressed. This section also provides guidance on development of the performance characteristics of the system. It recognizes the importance of systems being designed for the specific facilities they will serve and that the unique threats presented are taken into consideration. Power supplies, compatibility, system status indicators, and signals are addressed.

Guidance is also provided on initiating devices, zoning, wiring, circuit integrity and power supply monitoring, and system documentation.

System features

The section of the annex titled system features provides guidance on integration of mass notification with fire alarm systems, supplementary functions such as paging, background music, or other non-emergency functions. The section provides guidance on how systems should perform when serving multiple buildings and the establishment of signal priorities.

Voice messages and designing for intelligible instructions are reviewed in this section as well as guidance on visible signaling. The guidelines discuss that visible signals may be the same as or different from fire alarm devices, depending on the performance goals of the system. The need for controls that are usable by authorized persons to initiate appropriate messages in an emergency is also discussed.

Central control stations

The section on central control stations provides guidance on the communication methods and equipment used to receive and transmit information between premises sources or premises systems and the central control station. Inspection and testing of systems is also addressed.

The future of mass notification in NFPA 72

Since the release of the 2007 edition of NFPA 72, the Standards Council of NFPA has decided that a separate technical committee should be formed to take responsibility for establishing the design and installation criteria for mass notification. This new committee will report through the Technical Correlating Committee of NFPA 72 (TCC).

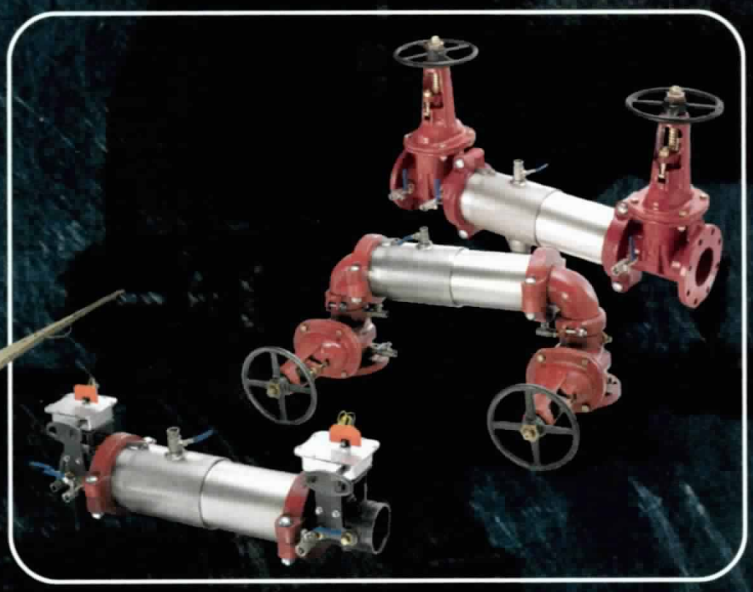
The charge of the new Technical Committee on Mass Notification will be to develop a new chapter for the body of NFPA 72 for the upcoming code development cycle. Proposals for the upcoming cycle of NFPA 72 are due November 2, 2007. Since the new technical committee will not be appointed until the July Standards Council meeting, the TCC has asked the Mass Notification Task Group to begin development of proposals prior to the formation of the technical committee.

This will be a challenging activity and input from a broad range of interests will be beneficial in making the new material a benefit to manufacturers, users, designers, AHJs, and the communities they serve.

RAY GRILL is a Principal with Arup and leads their Fire Business in the Americas. He currently serves as chair of the Technical Committee on Notification Appliances for Fire Alarm Systems and co-chairs the Task Group on Mass Notification.

Ames Delivers The Future of Backflow

Manufactured from 304 stainless steel, the Ames Colt™ and Maxim™ Series backflow prevention assemblies are 70% lighter than traditional designs. Lighter weight equals savings on shipping and installation costs. A typical 4"assembly requires 3 laborers and a crane or backhoe to install; with the Colt & Maxim one person can carry the valve and perform the installation. Pick-up the lightest backflow preventers in the industry, Ames Colt and Maxim Series today!



Our 2½"-4" Colt assemblies with butterfly shutoffs are light enough to ship UPS®!

UPS® is a registered trademark of United Parcel Service

AMES
FIRE & WATERWORKS

For more information, visit our web site at
www.amesfirewater.com/2000

EXCELLENCE MATTERS, SPECIFY IT!

NFPA 96: Cutting Edge

The proposed changes focus on advances in technology. By R. T. Leicht

The proposed changes to the 2007 edition of NFPA 96, *Ventilation, Control, and Fire Protection of Commercial Cooking Operations*, contains revisions that fine-tune the changes made by previous Technical Committees.

In January 2006 the Technical Committee for the Standard on Ventilation, Control and Fire Protection of Commercial Cooking Operations (NFPA 96) met in Baltimore to address 75 proposals that were submitted by the public. As usual, most of the Technical Committee principals attended along with some committee alternates and some interested parties not on the committee. Of the submitted 67 proposals, 50 of them were accepted, accepted in principle, or accepted in part.

This Technical Committee has primary responsibility for documents on fire safety in the design, installation, and use of exhaust systems (including hoods, grease removal devices, exhaust ducts, dampers, air-moving devices, and auxiliary equipment) for the removal of products of combustion, heat, grease, and vapors from cooking equipment, including the application of associated fire extinguishing systems.

Origin and development of NFPA 96

The subject of the ventilation of restaurant-type cooking equipment was first considered by the NFPA Committee on Blower and Exhaust Systems. That committee developed material on ventilation of restaurant-type cooking equipment to be included in NFPA 91, *Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying*. This was adopted by the Association in 1946. Revisions to the applicable sections were adopted in 1947 and 1949.

When the NFPA Committee on Chimneys and Heating Equipment was organized in 1955, the material on ventilation of restaurant cooking equipment in NFPA 91 was assigned to this new

Photo courtesy Ansul

committee with the suggestion that it be revised and published as a separate standard. Thus, in recent years this standard has been published as NFPA 96. Previous editions of the standard prepared by the Committee on Chimneys and Heating Equipment were adopted by the Association in 1961, 1964, 1969, 1970, 1971, 1973, 1976, 1978, 1980, and 1984.

The Correlating Committee on Chimneys and Other Heat and Vapor Removal Equipment was discharged by the Standards Council in 1986. The Technical Committee that prepared the 1987 edition became known as the Technical Committee on Venting Systems for Cooking Appliances.

In the 1991 edition, clearance requirements to combustible material were revised and expanded, including appendix figures that illustrated examples. A new definition for limited-combustible was added to the standard, and an appendix table was included to show typical construction assemblies. Chapters 3 and 4 were totally revised.

In the 1994 edition, the committee changed the name of the standard from *Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment* to *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*. The title change reflected other changes in the standard; two new chapters on recirculating systems and solid fuel cooking operations were added in 1994. A change to clearance and enclosure requirements in the 1994 edition allowed, for the first time, materials or products to be directly applied to a duct.

The committee prepared a revision to the standard reporting to the 1996 Fall Meeting, which was returned to the committee at the Technical Committee Reports Session.

The 1998 edition contained new definitions, minor revisions throughout, and a completely revised Chapter 7 on fire-extinguishing equipment.

The 2001 edition revised the document scope to clarify the application of the standard regarding residential-type cooking equipment. Further technical changes clarified requirements for duct installation, rooftop terminations, and fire protection equipment. This edition also contained a significant organizational and editorial revision based on the NFPA *Manual of Style*.

The 2004 edition contains a new chapter addressing the requirements for downdraft appliance ventilation as well as clarifications of the requirements for cleaning and maintaining exhaust systems and diagrams detailing new arrangements for hoods with integrated supply air.

The proposed 2007 edition of NFPA 96 contains revisions that fine-tune the changes made by previous Technical Committees. The following is a summary of some of the more significant changes that will be presented to the NFPA membership for adoption at the *World Safety Conference and Exposition® (WSC&E®)* in Boston this year. For more information and to register for the *WSC&E*, visit www.nfpa.org/wsce.

Definitions

The Technical Committee revised the definition of "Certified Person" to clarify the Technical Committee's intent as to the qualifications of this person.

Rather than deleting current 3.3.9, the Technical Committee is recommending that the standard retain the definition of "Certified" and add the following definition:

"Certified Person: A person trained and certified by the equipment manufacturer, or by a recognized organization through a formal certification program for the system to be serviced or cleaned, that is acceptable to the authority having jurisdiction."

The Technical Committee agreed that the term certified is necessary in the standard. The added term further clarifies the committee's intent as to the qualifications of a certified person.

Hood assemblies

A new requirement was added to Chapter 5 that would require wall-mounted exhaust hood assemblies to be tight fitting against the back wall so as not to permit passage of grease vapor behind the hood or between the back wall and the hood assembly. Otherwise, gaps between the hood and back wall would allow entry of grease vapor where the deposits of grease in these areas would be shielded from the fire detection and extinguishing equipment.

The Technical Committee is recommending the following addition:

5.2.1 Wall-mounted exhaust hood assemblies shall be tight fitting against the back wall as to not permit passage of grease vapor behind the hood, or between the back wall and the hood assembly.

The Technical Committee believes that gaps between the hood and back wall allow entry of grease vapor. Deposition of grease in these areas is a fire hazard.

A requirement that listed ultra-violet hoods be installed and maintained in accordance with the terms of their listing and the manufacturer's instructions was added. This new technology removes large volumes of both odor and grease in a controllable manner. This evolving technology

will allow for a number of options to the kitchen designer and the AHJ.

The Technical Committee reinforced that the use of "mesh" type filters is not permitted in commercial cooking hoods.

The Technical Committee is recommending the addition of 6.1.3.1 that reads as follows:

Mesh filters may be used as a secondary filter when incorporated downstream of a listed grease filter, listed baffles, or other listed grease removal devices tested in accordance with UL 1046 or listed subassembly of a hood tested in accordance to UL 710.

The Technical Committee has determined that the exhaust hood industry has developed high grease extraction efficiency multi-stage filters to more effectively capture grease at the hood, which typically include a mesh filter downstream of the primary listed filter. These filters have passed the UL 1046 requirements or have been tested as a subassembly to the requirements of UL 710. They are predominantly used by hood manufacturers that produce hoods with UV technology (ultra violet light).

THE AHJ CAN STILL REQUIRE SIMULTANEOUS EXTINGUISHING SYSTEM ACTIVATION.

These devices, which have passed the required testing and are listed, are being rejected by local officials because of the language in 6.1.3 (Mesh filters shall not be used).

Enclosures

Where field-applied grease duct enclosures could possibly be damaged physically, they will be required to be further protected with steel a minimum of 0.018 inches thick or equivalent protection. This will correspond with a similar requirement found in the *International Mechanical Code* (IMC).

The Technical Committee agrees that the 2003 International Mechanical Code specifically requires that exposed enclosure systems be protected where subject to physical damage. (Section 506.3.10, Exception 1). The added text is based on the IMC 2003 and includes further clarification on means of protection. The reference to 0.018 in. steel is based on the minimum requirements set forth by UL 1978 test standard.

However, rather than creating a new section, the Technical Committee recommends revising Section 4.3 and placing this requirement as a new 4.3.1.1 as follows:

4.3.1.1 Where subject to physical damage, field-applied grease duct enclosures shall be protected with steel (minimum 0.018 in. thick) or equivalent protection.

A section was added to Section 9.3 that requires fume incinerators, thermal recovery units, air pollution control devices, and all other devices installed in ducts or hoods to comply with the clearance requirements, the hood construction requirements, and the exhaust duct requirements found elsewhere in NFPA 96.

The Technical Committee is recommending the addition of 9.3.1.1 to read as follows:

9.3.1.1 Fume incinerators, thermal recovery units, air pollution control devices, or other devices installed in ducts or hoods shall comply with the following:

(1) The clearance requirements of Section 4.2.
(2) Hood construction requirements in Section 5.1.
(3) Exhaust duct construction complying with Chapter 7.

According to the Technical Committee, this type of equipment is installed either as an "in-duct" or an "end-duct" device that very likely is also part of a fire containment passageway in a cooking grease exhaust system. Consequently, there need to be minimum criteria regarding their construction, as well as clearance to combustibles. In addition, because they can be installed as either an "in-duct" or "end-duct" device, it then becomes a portion of the duct that must meet the applicable exhaust duct requirements.

Hoods

NFPA 96 has been revised to allow hoods that are installed end-to-end or back-to-back, that do not share a common exhaust, and are separated by a wall or other means, to be considered separate hazard areas and not in need of simultaneous protection. Naturally, the AHJ can still require the simultaneous extinguishing system activation.

The Technical Committee is recommending the following addition:

10.3.1.1 Hoods installed end to end, back to back, or both, or sharing a common ductwork, and having a grease-producing appliance(s) located under one or more of the hoods, are considered a single hazard area requiring simultaneous automatic fire protection in all hoods and ducts.

This has been an issue for a very long time. If grease producing cooking equipment is located under a hood that is end-to-end, or back-to-back to another, and the other does not include grease-producing equipment, do both hoods require protection? Because they are considered a single hazard area, and there is no way to guarantee that

grease from appliances under one hood is not exhausted into another, both require protection.

NFPA 96 specifies that the manual actuation device of the fire suppression system be within the path of egress and located between 10 feet and 20 feet from the protected kitchen appliance. It also now specifies that a manual actuation using a cable-operated pull station not require more than 40 pounds of force or a pull movement of more than 14 inches to actuate the fire suppression system. This corresponds with the requirements found in NFPA 17A, *Wet Chemical Extinguishing Systems.*

The Technical Committee is recommending the following revision:

10.5.1.1 A manual actuation device shall be located a minimum of 10 feet (3.05 m) when possible, and a maximum of 20 feet (6.1 m) from the protected kitchen appliance(s) within the path of egress.

10.5.1.2 Manual actuation using a cable-operated pull station shall not require more than 40 pounds (178 N) of force, with a pull movement not to exceed 14 inches (356 mm) to actuate the fire suppression system.

The proposed edition of NFPA 96 would also require that listed hoods containing mechanical or fire-actuated dampers, internal washing components, or other mechanically operated devices be inspected and tested in accordance with their listing. There are a number of devices that are installed in "special" hoods or hoods with special equipment that need to be maintained so they will operate as designed.

Previously, NFPA 96 stated that solid fuel cooking equipment served by hoods and duct systems shall be separate from all other exhaust systems. A change now specifies that this include equipment that uses solid fuel but also has a gas or electrical heat source.

Although water-type extinguishers are typically not found where traditional cooking operations takes place since they don't have the saponifying effect, they are permitted to protect small solid-fuel-fired cooking operations. To reduce the possibility of catastrophe if a straight stream is mistakenly used on the wrong equipment, there is now a requirement that the water-type extinguishers be Water Spray fire extinguishers. Additionally, an Annex section has been added as a warning of the undesirable situation.

Change "2-A rated water-type fire extinguisher" to read "2-A rated Water Spray Fire Extinguisher" and add an asterisk for Annex material.

Add A.14.7.8 as follows:

A.14.7.8 The 2-A rated Water Spray Fire Extinguisher is equipped with a nozzle that does not produce a straight stream. Water-type extinguishers are not allowed in the kitchen according to 10.10.2 because they do not saponify upon contact with grease. However, 2-A rated water-type extinguishers are allowed to be used for solid fuel cooking in appliances with fireboxes of 0.14 m^3 (5 ft^3) volume or less. Tests have demonstrated water-type extinguishers utilizing a solid stream discharge pattern can be a safety concern in certain types of fires such as a fryer fire.

It is critical that grease not collect on surfaces above or adjacent to the cooking equipment. As downdraft systems do not typically include an overhead canopy hood, fire containment would be difficult if surfaces are allowed to become grease loaded, and fire may propagate to non-protected areas. That being stated, there is now a new requirement that downdraft appliance ventilation system be capable of capturing and containing all of the effluent discharging from the appliance it is serving.

The next steps

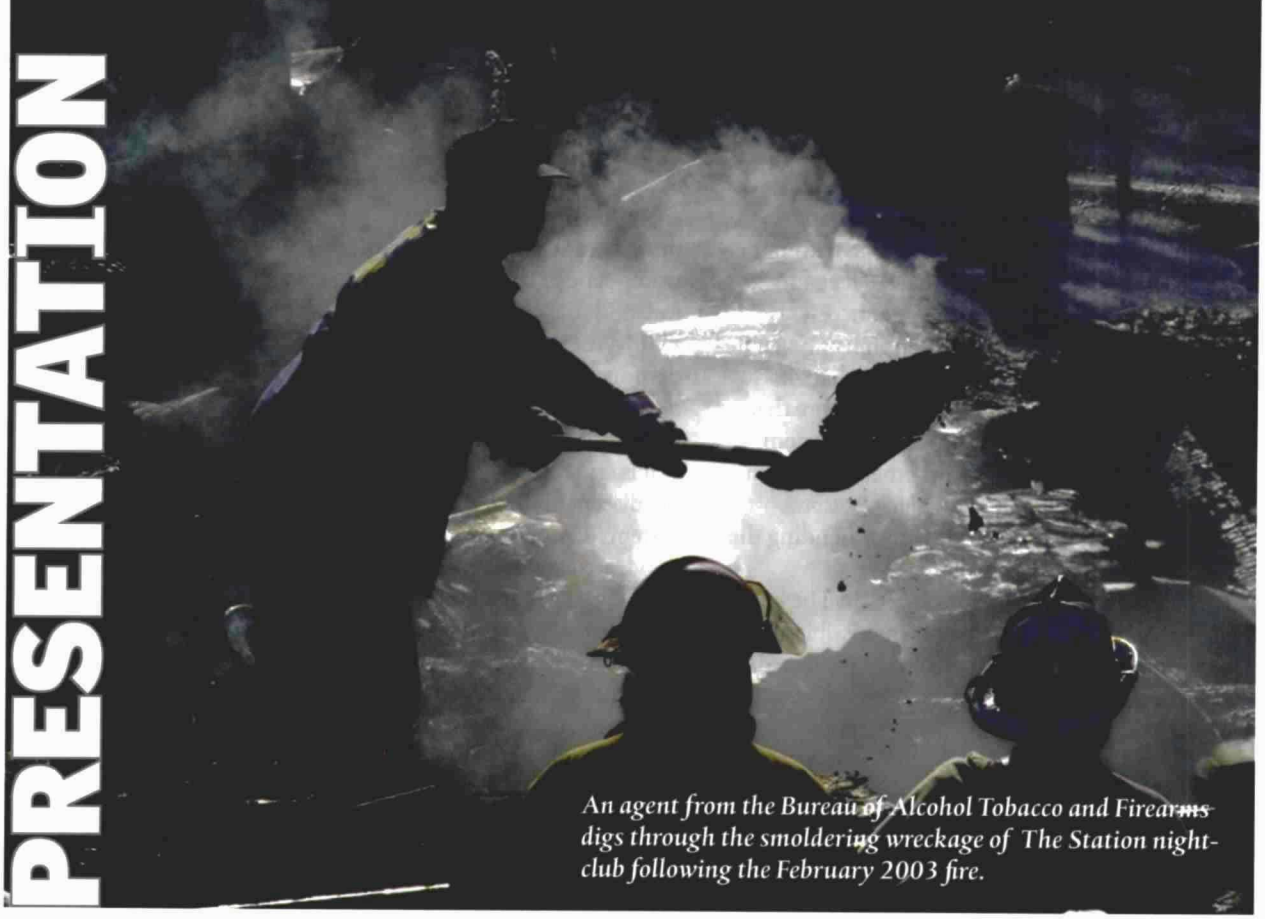
At the *WSC&E* in June, the NFPA members attending the Technical Report session will review the changes proposed for NFPA 96. The motions that can be made to amend the technical committee reports are limited by NFPA regulations. Individuals who have submitted a notice of intent to make a motion (NITMAM), and where the motion has been certified to be a proper motion under NFPA regulations, will be allowed to present their motion in person at the meeting. These certified motions, posted in advance of the meeting, set the meeting agenda. Individuals who submitted a proposal or comment could make a motion to have their proposal or comment (or an identifiable part) accepted during this session. Those present may also make certain other motions. After consideration of each amending motion, the members present vote on the amended document, and it moves on to the Standards Council.

To further explain the proposed changes and their impact on food service facilities, a one-day seminar is scheduled to be held on June 2 as part of the *WSC&E* pre-conference seminar offerings.

To register for the *WSC&E* or to learn more about the NFPA 96 pre-conference seminar and other pre-conference seminars, visit www.nfpa.org/wsce.

R.T. LEICHT is the secretary and past chair of the Technical Committee on Venting Systems for Cooking Appliances. He is also the fire marshal for the state of Delaware and the International Fire Marshals Association representative to the Technical Committee on Venting Systems for Cooking Appliances.

FEATURED PRESENTATION



An agent from the Bureau of Alcohol Tobacco and Firearms digs through the smoldering wreckage of The Station nightclub following the February 2003 fire.

The Legacy of Nightclub Fires

Two presentations at *WSC&E*® examine the code changes, research, and legislation related to nightclub fires. By Robert Duval

In the late evening hours of February 20, 2003, a fast-moving fire spread through The Station nightclub in West Warwick, Rhode Island. This fire completely destroyed the building and resulted in 100 fatalities and over 200 injuries, becoming the fourth deadliest nightclub fire in U.S. history. This fire immediately invoked memories of other tragic fires in assembly occupancies, such as the Cocoanut Grove, the Rhythm Club, and the Beverly Hills Supper Club. Many common factors can be found when analyzing these tragedies, including combustible interior finish, overcrowding, and problems with egress.

Following months of study and analysis, several changes to key NFPA codes were completed resulting in new requirements that should help to mitigate similar occurrences in the future. These changes were made to NFPA 101®, *Life Safety Code*®, NFPA 5000®, *Building Construction and Safety Code*®, and NFPA 1, *Uniform Fire Code*™ relating to Assembly Occupancies.

This year's Featured Presentation at the *World Conference and Safety Exposition*® (*WSC&E*®) will review The Station fire and the response of NFPA to this tragedy, the report and research completed by the NIST-National Construction Safety Team on the fire, and the changes made to state fire codes by Rhode Island and Massachusetts because of the fire. The presentation is planned for June 5 from 2:15 p.m. to 3:45 p.m.

In addition, a panel discussion that will examine the legacy of the 1942 Cocoanut Grove nightclub fire in Boston from a multi-disciplinary approach will be held Tuesday, June 5, from 4:15 p.m. to 5:45 p.m. This Spotlight Presentation examines the fire that killed nearly 500 people and changed

Photograph: Corbis

fire code enforcement, burn treatment methods, and manslaughter case law around the nation. Experts will examine the fire from multiple angles, including its lasting impact on Boston.

The Station

NFPA became aware of The Station nightclub fire in the early morning hours of February 21, 2003. As the magnitude of the incident became clearer, as NFPA's Senior Fire Investigator I traveled to West Warwick that morning, at the request of the Rhode Island State Fire Marshal's Office, to provide assistance immediately following the tragedy.

While on the scene in the hours and days following the incident, opportunities were taken to meet with investigators, fire officers, and fire fighters; to view the scene; and to perform an on-site study of the incident. The information gathered during the on-site activities and subsequent analysis of that information is the basis for this report.

Entry to the fire scene was made through the cooperation of the Rhode Island State Fire Marshal's Office. The information in this report is intended to serve as an aid to researchers, safety specialists, the fire service, and to the code- and standards-development activities conducted by NFPA and other organizations. The opinions expressed and conclusions drawn are those of the NFPA staff who prepared this report and do not, therefore, necessarily represent the official position of NFPA or of the NFPA Technical Committees that develop NFPA codes and standards.

All information and details regarding the fire safety conditions gathered in this report are based on the best available data and observations made during the on-site data collection phase and on any additional information provided during the report development process. It should be noted that the ability of NFPA staff to collect all relevant facts and draw definitive conclusions may have been limited by a variety of factors, including available time and access. This report is not intended to comprehensively document or analyze this fire incident. For such a report, see the National Institute of Standards and Technology (NIST) technical investigation report. Rather, this report focuses on some of the contributing factors that have been seen in the other nightclub fires. The purpose of the report is not to pass judgment on or fix liability for the loss of life and property resulting from the fire, but is rather to provide documentation and discussion that may help improve understanding of how to minimize or prevent such losses in the future.

The 2003 editions of relevant NFPA codes and standards were used as the basis for this analysis so that the information gathered about the fire could be reviewed in light of the editions of NFPA codes and standards available at the time of the fire. It is recognized, however, that these codes and standards may not have been in effect during the design, construction, and operation of the building. NFPA has not analyzed the building in West Warwick regarding its compliance with the local codes and standards in existence when the building was constructed and during its operation.

In addition, NFPA reviewed information included in the NIST–National Construction Safety Team report on the fire. The cooperation of the Rhode Island State Fire Marshal's Office is greatly appreciated. The author would also like to extend his appreciation to former Rhode Island State Fire Marshal Irving Owens, Chief Deputy State Fire Marshals Michael DiMascolo and Richard James, and their staff for their assistance during the on-scene portion of the investigation and in preparing this report.

Building construction and occupancy

The building that contained The Station nightclub was constructed in approximately 1946. The structure was utilized as a restaurant, tavern, and nightclub under various owners. Numerous renovations and repairs were completed on the building since construction. A fire damaged the club in March of 1972. The building remained closed until November 1974, when repairs were completed on the fire damage. At this point, the building was converted from a club into a restaurant and reopened. In February 1985, a change of ownership occurred and the facility was converted once again to a pub.

According to records, in 1991 the facility was converted to nightclub use. The building was a wood-framed structure with a mansard-type roof façade on the north side. The walls were of wood construction, with wooden exterior shingles. The wood frame roof structure was mostly flat with a built-up asphalt covering. A partial basement was located beneath the eastern portion of the building. Windows were located mainly on the north face of the building. Windows on the east side of the front entrance consisted of double-hung type, while the west side contained a "sunroom-type" window assembly. Small windows were located in the restrooms and office areas on the south wall of the building. These windows contained security bars. The interior of the building was arranged into two distinct areas: the bar and the club. The bar area was located in the northeastern portion of the building (to the left as one entered the front

entrance). This area also included the kitchen and dart room portions of the facility.

The club portion, which encompassed the majority of the facility, was located west (right) of the front entrance. This area of the facility included the dance floor, the platform, and the sunroom, which contained billiard tables. The entrance to the facility was arranged with a short corridor, approximately 15 feet (4.6 meters) in length and 6 feet 6 inches (2 meters) in width. At the end of this corridor, there were doorways to the right and left. The bar area was located to the left, while the club area occupied the space to the right of this corridor.

The bar area contained a horseshoe-shaped bar in the northeast portion of the building. The kitchen was located immediately behind the bar. A room referred to as the dart room was located behind the kitchen. Access to the food and beverage coolers was located through the dart room. The southeast

THE FIRE DESTROYED THE BUILDING AND RESULTED IN 100 FATALITIES AND MANY INJURIES.

corner of the building contained the business office and the club restrooms. The club area of the facility contained small tables with chairs and a small number of booths along the southwest wall of the area. The tables and chairs could be rearranged or removed from the building in the event a large crowd was anticipated for a show. The billiard tables could be moved against the walls in the sunroom in order to make room for additional patrons. On the night of the fire, the tables were moved to allow for extra room. A raised platform was centrally located on the west wall of the club area. An alcove was located to the rear of the platform to allow for additional room on the platform.

When bands performed, the drummer was usually located in this alcove. The ceiling area directly above the platform was raised slightly to allow for the installation of a stage lighting unit. The interior finish at the time of the fire reportedly consisted of painted surfaces, wooden paneling, and expanded foam plastic insulation. In an effort to lessen the noise on the exterior of the club when bands performed at the club, expanded foam insulating material was installed on the walls of the building interior, around the platform, and within the drummer's alcove. The exact extent of the expanded foam plastic insulating material installation and its composition are unknown.

Egress arrangement

The building contained four exits:

- Front (main) doors
- Bar side exit door
- Platform exit door
- Kitchen exit door

The front entrance contained two doors (each 36 inches [0.9 meters] wide) that swung outward. A ramp and step arrangement was located at the front entrance. A railing on the platform was installed parallel to the front wall of the building, making the platform at the entrance 6 feet 6 inches (2 meters) wide. A single, outward-swinging door was located approximately 6 feet (1.8 meters) into the corridor as measured from the front doors. The cross-corridor door was approximately 36 inches (0.9 meters) wide. The corridor measured 6 feet 7 inches (2 meters) in width. The front entrance corridor contained two openings into the main portion of the building, one on the bar side of the corridor and the other into the club. A counter for a ticket taker was located to the left at the end of the corridor. The bar and kitchen exits each contained a door 36 inches (0.9 meters) wide that swung outward. Both doors were equipped with panic hardware. The exit near the platform measured 36 inches (0.9 meters) wide and contained two doors mounted in series in the door opening: one interior and one exterior. At the time of the fire, the interior door swung inward, while the metal-clad outer door swung outward. The exterior door was equipped with panic hardware. Illuminated exit signs were located above each exit.

Fire protection

The building was equipped with a fire alarm system consisting of manual fire alarm boxes, heat detectors, and horn/strobe notification units. The heat detectors were located throughout the facility, including above and below the platform in the club area. The fire alarm system was not connected to a central station service or to the local fire department alarm office.

This facility was not protected with automatic sprinklers. Portable fire extinguishers were located throughout the facility, although the exact distribution and type could not be determined. The kitchen contained a chemical extinguishing system for the cooking area, as well.

The incident

On the evening of the fire, the nightclub was hosting a program with several bands, including a headlining act. The headlining band took the stage at approximately 11:07 p.m. Several seconds

into the act, pyrotechnic devices called gerbs were activated in the center of the platform, directly in front of the drummer's alcove. A local television station was filming the evening's activities for an upcoming story on nightclub safety in the days following the fatal crowd crush incident at the Chicago E2 nightclub, which claimed the lives of 21 on February 17, 2003. This news video provided a firsthand account of the activities inside the club in the moments leading up to the fire, as well as the first terrifying moments after the fire. (A video account of such a tragic incident is rare, but has occurred before, as in the case of the Bradford Soccer Stadium Fire in England on May 11, 1985.)

In the news video, the viewer can see the lights dim as the band takes the stage and begins the first song. As the pyrotechnic devices activate, the sparks emanating from the gerbs ignite the material on the walls around the platform, near the opening to the alcove. Flames begin to expand slowly at first, at the two ends of the alcove opening, spreading upward. For the first few seconds, the crowd seems to think the fire is part of the pyrotechnic special effects and the band seems unaware of the fire. Within 10 to 20 seconds, crowd members begin pointing at the spreading flames on the walls, as members of the band become aware of the fire. The band stops playing and leaves the platform in less than 30 seconds.

At this point, the crowd begins to react and to attempt to egress the building. The cameraman's viewpoint is from the rear of the dance floor area and the video clearly shows patrons beginning to egress the building using the main entrance, which is to the cameraman's right. The fire alarm sounds at approximately 40 seconds from the time of ignition. The horns and strobes can be clearly heard and seen in the video. The cameraman merges into the exiting patrons and leaves the building approximately 70 seconds from the time of the ignition. As the cameraman exits, the video shows the fire growing rapidly on the walls near the platform and the smoke layer growing thicker throughout the building. As the cameraman enters the corridor near the front entrance, smoke can be seen on the video, growing heavier, from a light haze to a darker gray.

Once the cameraman is outside, the video displays the smoke growing thick, black, and billowing out the front doors and windows as patrons use both to escape. Within seconds, escaping patrons begin to pile up at the front doors, as those behind them struggle to escape. Those who have escaped attempt to free those trapped in the pile, as heavy smoke pours out over their heads. The video then shows the scene as the cameraman walks around to the west from the front of the building. As he trains the camera on the platform door opening, the viewer sees thick black smoke within 12 inches of the floor, and bright orange flames deep within the building. Approximately 4 minutes and 30 seconds have elapsed from the time of ignition.

At this point, sirens can be heard. As the cameraman walks back toward the front of the building, the situation has worsened. The black smoke has turned to flame at the front entrance and at the open windows along the front of the building. As the first fire apparatus arrives on the scene, a hoseline is stretched to the front entrance and water is aimed into the front corridor in an effort to save those trapped in the entrance corridor. From the time of ignition to the point where the facility was well involved in flames less than 6 minutes had passed. The initial 911 calls for assistance were received from cellular phones at the scene. The police officer stationed at the club on a paid detail notified his dispatcher of the fire as well. The West Warwick Fire Department, upon notification of the severity of the situation, requested mutual aid from surrounding communities for both fire apparatus and ambulances.

A Multiple Casualty Incident (MCI) was declared and the local MCI plan was put into effect. A triage area was established in a restaurant across the street from the nightclub. As fire and rescue units converged on the scene, victims were transported to nearby hospitals and trauma centers, quickly filling many to capacity. Over 200 victims were treated on the scene and transported to several medical facilities in the area in under 2 hours from the time of the fire. The initial death toll was 96 on the day after the fire. This rose to 100 over the course of the 70 days following the fire, as four of the most severely injured died in hospitals in Rhode Island and Massachusetts. With the transport of the last of the injured, the task of recovery of the victims within the building began, with units from the State Fire Marshal, State Medical Examiner's Office, and a task force of law enforcement agencies (local, state, and federal) taking part. The recovery phase was completed late in the day on February 21. (The last victim was identified on February 25.) The scene was secured as the investigation process began.

The aftermath

The investigation into The Station nightclub tragedy involved many local, state, and federal

agencies. Under the direction of the State Attorney General's office and State Fire Marshal, an investigative team composed of investigators from the State Fire Marshal's office and a statewide task force of law enforcement agencies, as well as investigators from the Bureau of Alcohol, Tobacco and Firearms (ATF) was formed to conduct the detailed examination of the fire.

The fire scene was processed and witnesses interviewed by the members of the investigative team. The scene processing included the involvement of a forensic archeologist from Brown University, whose team divided the scene into small grids and further processed the site for articles of evidence and personal effects of victims. In the days following the fire, representatives from NIST (National Institute of Standards and Technology), operating under the National Construction Safety Team (NCST) Act, visited the scene as well to gather preliminary information that would lead to a full report on the fire. This report was released in June 2005.

On December 9, 2003, a state Grand Jury handed up indictments against the two owners of the nightclub and the manager of the headlining act. Each was charged with 200 counts of manslaughter. On February 7, 2006, the band manager pleaded guilty to 100 counts of involuntary manslaughter in a plea agreement. The trial for the club owners began in mid-2006.

When comparing The Station incident with the other historic fires in assembly occupancies, one of the common factors among them is the presence of combustible interior finish, contents, and furnishings. The presence of combustible interior contents can be linked to the fire spread in the Rhythm Club (dried Spanish moss hung from the ceiling rafters), the Cocoanut Grove (furnishings and decorations), and the Beverly Hills Supper Club (wall and floor coverings). In The Station fire, expanded foam insulating materials were reportedly in place on the walls adjacent to the platform and in the drummer's alcove space.

NFPA 101 has addressed interior finish in all occupancies, including assembly, for many editions of the document. The classes of interior finish (A, B, and C) are based on Flame Spread and Smoke Development Indexes. These indexes are determined by testing a material in accordance with NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials* (similar to ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*; or UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*).

In the 2006 edition of NFPA 101, the subject of interior finish is outlined in the following areas: Chapter 10 Interior Finish, Contents, and Furnishings 10.1 General. 10.1.1 Application. The interior finish, contents, and furnishings provisions set forth in this chapter shall apply to new construction and existing buildings. 10.2.3.4 Products required to be tested in accordance with NFPA 255, ASTM E 84, or UL 723 shall be classified as follows in accordance with their flame spread and smoke development, except as indicated in 10.2.3.4(4): (1) Class A interior wall and ceiling finish shall be characterized by the following: (a) Flame spread, 0–25 (b) Smoke development, 0–450 (c) No continued propagation of fire in any element thereof when so tested (2) Class B interior wall and ceiling finish shall be characterized by the following: (a) Flame spread, 26–75 (b) Smoke development, 0–450 (3) Class C interior wall and ceiling finish shall be characterized by the following: (a) Flame spread, 76–200 (b) Smoke development, 0–450 Existing interior finish shall be exempt from the smoke development criteria of 10.2.3.4(1)(b), 10.2.3.4(2)(b), and 10.2.3.4(3)(b). Chapter 13 Existing Assembly Occupancies 13.3.3 Interior Finish. 13.3.3.1 Interior finish shall be in accordance with Section 10.2. 13.3.3.2 Interior wall and ceiling finish materials complying with Section 10.2 shall be Class A or Class B in all corridors and lobbies and shall be Class A in enclosed stairways. 13.3.3.3 Interior wall and ceiling finish materials complying with Section 10.2 shall be Class A or Class B in general assembly areas having occupant loads of more than 300, and shall be Class A, Class B, or Class C in assembly areas having occupant loads of 300 or fewer.

Interior finish played a significant role in The Station fire in two ways. Not only was the interior finish easily ignited but it also allowed for the rapid spread of the fire within the building. According to the *Life Safety Code*, the interior finish is required to be Class A or B for general assembly areas with occupant loads of more than 300. Class C interior finish is permitted if the occupant load is 300 or fewer. In addition, the expanded foam insulating materials attached to the walls near the platform would be subject to the provisions for cellular or foamed plastic, which prohibit the use of this particular material as interior finish unless it is utilized in insignificant amounts or the material has been subjected to fire testing that substantiates the combustibility characteristics for the use intended under actual fire conditions. The presence of combustible interior finish in the area of the fire's origin affected the ability of the occupants to egress the building that night. The fire created

conditions within the building that prevented many from reaching an exit before being overcome by smoke and heat.

When viewing the video taken that night in the club, one can see that most of the occupants headed for the main (front) exit when the fire began. This exit and its corridor soon became jammed as occupants rushed to escape the worsening conditions in the building. The bottleneck at the corridor and the extremely rapidly growing fire conditions within the building forced occupants to attempt to use windows as a means of escape. NFPA 101 has, for many generations of the document, addressed main entrance/exit requirements in existing assembly occupancies. In the 2003 edition, this requirement is outlined in the following paragraph: 13.2.3.6 Main Entrance/Exit. Every assembly occupancy shall be provided with a main entrance/exit. 13.2.3.6.1 The main entrance/exit shall be of a width that accommodates one-half of the total occupant load and shall be at the level of exit discharge or shall connect to a stairway or ramp leading to a street. The rapid spread of the fire and the large volume of smoke is validated by the research and modeling conducted by NIST during its investigation. When examining ignition sources from other historic fires in assembly occupancies, common forms were found to be lighting (gas, and then later, electric) coming in contact with combustible materials, or open flame, as was suspected in the Cocoanut Grove fire. However, The Station fire resulted from a form of ignition not often seen when comparing other fires in assembly occupancies: pyrotechnics.

Life Safety Code addresses pyrotechnics in existing assembly occupancies, as well as referencing NFPA 1126, *Use of Pyrotechnics Before a Proximate Audience*, in Chapter 13 on Existing Assembly Occupancies. Chapter 13 Existing Assembly Occupancies 13.7.2 Open Flame Devices and Pyrotechnics. No open flame devices or pyrotechnic devices shall be used in any assembly occupancy, unless otherwise permitted by the following: (1) Pyrotechnic special effect devices shall be permitted to be used on stages before proximate audiences for ceremonial or religious purposes, as part of a demonstration in exhibits, or as part of a performance, provided that both of the following are met: (a) Precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible material. (b) Use of the pyrotechnic device complies with NFPA 1126, *Use of Pyrotechnics Before a Proximate Audience*. A similar requirement is also located in NFPA 1, *Uniform Fire Code* (1:20.1.4.2).

NFPA Timetable Based on TV News Video

Elapsed Time / Event

0:00 Pyrotechnics Activated

0:09 Flame Visible on Wall

0:19 Flames Progressing Upward—Crowd Begins to React

0:25 Flames at Ceiling

0:35 Band Stops Playing

0:48 Alarms Heard

1:00 Smoke at Ceiling Throughout Room

1:15 Cameraman at Front Door (Smoke at Ceiling and Out Front Door)

1:30 Fire Visible at Platform Door

1:43 Black Smoke at Bottom of Sunroom Windows

1:53 Black Smoke at Front Door—Occupants Piled at Door

2:00 Alarms No Longer Audible from the Outside of the Building

2:23 Occupants Exiting at Windows Near Bar (Left of Front Exit)

3:00 Black Smoke at All Front Openings (Windows and Doors)

3:25 Black Smoke Fills Entire Front Door (Victims Still Piled at Door)

4:00 Black Smoke Thickening at All Front Openings

4:30 Sirens Audible in Background

4:30–4:45 View of Platform Door – Fire on Floor, Heavy Black Smoke, and Dripping Materials from Ceiling

5:00 Fire Visible at Restroom Wing

5:23 Flames at Front Openings (Doors and Windows)

Cocoanut Grove

The Cocoanut Grove nightclub was a popular destination in Boston in 1942. The club offered entertainment in a nightclub on the street level as well as more intimate surroundings in a small lounge on a lower level. In the months leading up to the fire, another lounge (Broadway Lounge) had been opened adjacent to the club on the main level by renovating several adjacent buildings and adding them to the club's footprint. This renovation gave the facility the shape of two overlapping rectangles. The original building was constructed of concrete in 1916. In the years prior to its transformation into a nightclub, the building was used as a garage and film storage facility. It was bordered on three sides by Piedmont Street, Shawmut Street, and Broadway. The building measured 100 feet x 90 feet (30.5 meters x 27.4 meters) in an irregular shape.

The building was mainly a single story (with a partial lower level), except for a small upper level above the new lounge that contained dressing rooms and restrooms. The lower level contained the Melody Lounge as well as the kitchen and liquor storage for the club. The main club area measured approximately 60 feet x 60 feet (18.3 meters x 18.3 meters). The Broadway Lounge measured 40 feet x 40 feet (12.2 meters x 12.2 meters), and the Melody Lounge measured 55 feet x 35 feet (16.8 meters x 10.7 meters). Exits from the facility were located on the Piedmont Street, Shawmut Street, and Broadway sides of the building. The main entrance was through a revolving door arrangement on Piedmont Street. This entrance opened into the lobby of the club.

Access to the Melody Lounge was via a single set of stairs from the lobby. There were no other means of egress from this portion of the club. The Shawmut Street exit was located approximately halfway along the wall in the main club area. Another door on the Shawmut Street wall, adjacent to the stage, was locked. The Broadway exit was located in the new cocktail lounge. A single door, in the lounge, leading to the outer doors on Broadway opened inward. All other doors within the building that would have provided access to the outside were locked or obscured at the time of the fire.

One of these locked doors was located on the Piedmont Street side, to the left of the marquee over the main entrance. Had this door been unlocked at the time of the fire, it would have provided a means of egress for the patrons in the Melody Lounge without their having to travel into the lobby and use the revolving door.

Exits from the dressing rooms on the upper level were via stairs that terminated at the locked Shawmut Street door. Windows on the Piedmont Street and Shawmut Street sides of the building were covered so as not to be visible from the inside of the building. The interior of the nightclub was decorated with numerous fabrics and materials. These included artificial leather on walls and the bars and cloth on the ceilings. Suspended ceilings and false walls throughout the facility covered the original construction features of the building. Artificial palm trees were placed in the club and in the Melody Lounge. Lighting and the associated wiring were incorporated into these trees.

The Melody Lounge also contained rattan wood wall coverings. Many of the furnishings within the club and lounges were covered in artificial leather material as well. Reportedly, just eight days before the fire, fire department inspectors found "no flammable decorations" and sufficient exits and fire extinguishers. The only deficiency the city building inspector found in an inspection just prior to the fire was the lack of a steel fire door between the Broadway Lounge and the main dining area.

After the addition of the Broadway Lounge, the club had applied for a license as a restaurant with a capacity of 490 patrons. The reported capacity of all areas was approximately 600. On the night of November 28, 1942, the Cocoanut Grove was well over capacity, with estimates of over 1,000 occupants in the building at the time of the fire. The fire began in the area of an artificial palm tree in the Melody Lounge.

A popular account was that a busboy used a match to provide light as he investigated a faulty

7th

International Water Mist Conference

November 28 -30 2007, Paris, France

« Are you responsible for selecting fire protection in your facility? »

« Are you looking for innovative fire suppression alternatives due to Halon phase-out? »

« Are you doing research and testing in the field of water mist technology and would like to share your findings? »

« Are you a consultant, engineer, manufacturer or contractor and have an interest in water mist technology ? »

...the IWMA Conference will provide answers.

IWMA
International Water Mist Association

The IWMA Conference is sponsored by

EUSEBI IMPIANTI

DUPONT
The miracles of science™

FOGTEC
FIRE PROTECTION

SIEMENS
Building Technologies

FM Approvals℠
Member of the FM Global Group

RODIO J.
protection incendie sprinkleurs

Danfoss
SEMCO
FIRE PROTECTION

See
www.iwma.net
for details

tyco
Fire & Integrated Solutions

The afternoon of the first day will be used for real fire demonstrations with water mist systems at an institute in Paris. The shuttle bus is already included in the attendance fee

Registration

Name _____ First Name _____

Organization Address _____

Tel.: _____ Fax: _____ E-mail: _____

Payment received on or before 29 June	Members **390 Euro**	Non-Members **450 Euro**
Payment received after 29 June	Members **430 Euro**	Non-Members **490 Euro**
On-Site Registration	Members **470 Euro**	Non-Members 53**0 Euro**

☐ Bank transfer ☐ Credit Card* *Payment by credit card available for attendees outside Europe by Paypal

Date _____ Signature _____

Fax or mail this registration form to: **International Water Mist Association**, Biederitzer Str. 5, D-39175 Heyrothsberge, Germany, or register online at **www.iwma.net**

Phone +49 - 392 92 - 690 25 **Fax +49 - 392 92 - 690 26** **E-mail info@iwma.net**

light bulb within the tree. Within seconds, the tree had ignited. The smoke, heat, and flames spread rapidly throughout the lounge, forcing patrons to flee, using the only exit passage toward the stairs and the lobby. Many were overcome before they could reach the exit.

The first indication of trouble for occupants on the main floor was when a young woman ran screaming through the lobby with her hair on fire, immediately followed by a wave of smoke and heat from the stairwell. Many headed toward the exit on Piedmont Street, having entered the club earlier through the revolving door at that entrance. The revolving door quickly became jammed as patrons pushed toward the door. Others within the main club headed toward the door on Shawmut Street. Many were able to exit through this door until smoke and toxic fumes, along with the tangle of hundreds of tables and chairs, overcame those remaining in the building.

Those in the Broadway Lounge were the last to know of the fire, being the most remote from the lobby area. Approximately 4 to 6 minutes from ignition, occupants from the main club area began to rush into the Broadway Lounge seeking an exit from the building. The smoke, heat, and fumes followed rapidly. The only remaining viable exit from the building was quickly jammed, as the inward-opening door was forced closed by the crush of people attempting to exit. The fire department, which had several units on the block for an automobile fire, was alerted by a passer-by to the commotion at the Cocoanut Grove. Arriving within seconds, fire fighters immediately went to work rescuing patrons near the entrances. Additional alarms were sounded as the magnitude of the situation became apparent. Windows were broken on the Shawmut Street side in an attempt to gain access to the building and as a means of removing victims. Fire fighters and civilians began to pull bodies from the building through any accessible point. Victims, suffering burns and smoke inhalation injuries, were transported by all available means to city hospitals. At this point, the fire had consumed the combustible interior finish and furnishings and was extinguished rapidly by the fire department.

Once fire fighters were able to gain access to the interior of the building, they were met with a horrific sight: bodies piled several feet high at the revolving door and near the exit in the Broadway Lounge. Approximately 200 bodies were found at the revolving door and 100 more were found at the Broadway entrance. The remaining fatalities were found throughout the facility, many at their tables, overcome so rapidly that they were unable to make an effort to escape.

In the days and weeks following the fire, the death toll became a staggering 492, making the Cocoanut Grove the deadliest nightclub fire in U.S. history. In the months following the Cocoanut Grove fire, changes were made to building codes across the country. The most notable advances were made in the areas of exits, combustible materials, emergency lighting, and automatic sprinklers. The definition of places of public assembly was also expanded.

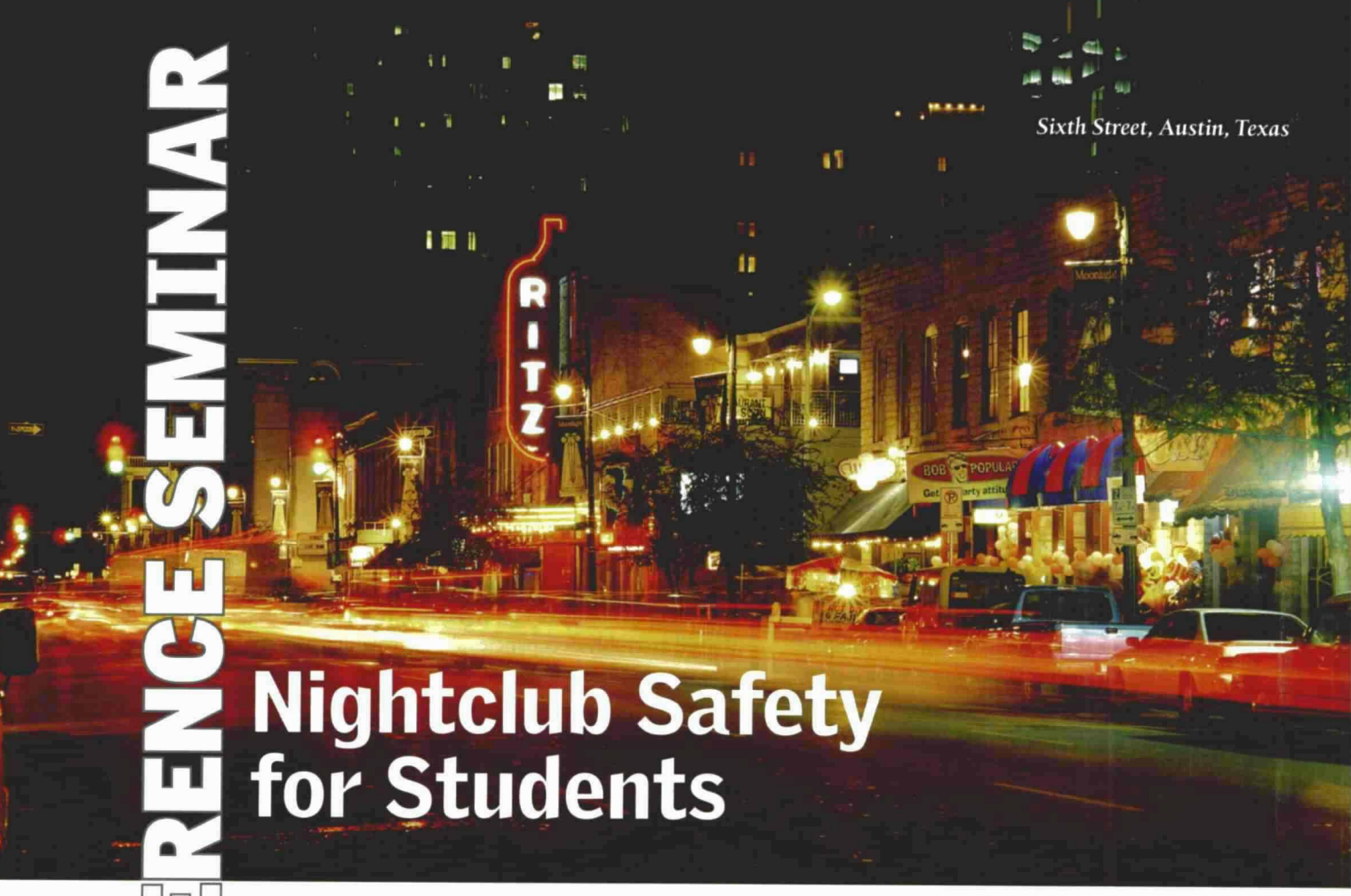
Before the fire at the Cocoanut Grove, many jurisdictions did not consider restaurants and nightclubs to be places of public assembly. Notably, the 1942 edition of the NFPA *Buildings Exit Code* (the early version of today's *Life Safety Code*) did consider nightclubs to be essentially places of public assembly, in the same class as a theatre, but having a greater possibility of fire. Today, it is recognized that all assembly occupancies should have at least two separate and remote means of egress, and the necessary number, width, and types of reliable exits based on the expected occupancy should be available.

After the fire, Robert Moulton, NFPA's Technical Secretary and the secretary of the NFPA Committee on Safety to Life, indicated in a newspaper interview: "The most glaring feature of this tragedy was the lack of proper exits. Revolving doors have long been considered by the National Fire Protection Association Committee on Safety to Life as a menace under fire and panic conditions." That same edition of the Code required that "decorations of theatres and assembly halls shall be of fire-resistive or nonflammable materials. Fabrics and papers used for such purposes shall be treated with an effective flameproofing material."

A cautionary note warned: "Paper and cloth decorative materials should be kept to a minimum in places of assembly since such flimsy materials increase the hazard of the kindling and spread of fire." Largely as a direct result of the Cocoanut Grove fire, the *Building Exits Code* was adopted by many more jurisdictions across the country, due in large part to the efforts of the fire service. The Committee on Safety to Life reported on that increased usage at the 1945 NFPA Annual Meeting. It was during the 1945 NFPA Annual Meeting that the Committee on Safety to Life also recommended a change in the method of exit measurement, clarification of the need for stairway enclosure, provisions regulating loose chairs in nightclubs, and changes in lighting and signs. Those changes were incorporated into the 1946 edition of the Code, as was a special note on interior finish.

ROBERT DUVAL is NFPA's Senior Fire Investigator and NFPA's New England Regional Manager.

PRE-CONFERENCE SEMINAR



Sixth Street, Austin, Texas

Nightclub Safety for Students

The message of the Texas State Fire Marshal's office to college students is "Have an Exit Strategy." By Carolyn Perez

In October 2006, in observance of Fire Prevention Week, Texas State Fire Marshal's Office launched a comprehensive fire prevention campaign on the University of Texas' Austin campus and at other locations throughout the state. The campaign, *Have an Exit Strategy*™, urged college students to identify alternate exits and create an escape plan when they enter a crowded public space such as a nightclub.

State Fire Marshal Paul Maldonado, like thousands of his colleagues around the country, was disturbed after viewing video footage of the 2003 Station Nightclub fire in Rhode Island where 100 patrons tragically died. Could this happen in Texas? "The *Have an Exit Strategy* campaign is designed to bring exit safety to the forefront of your consciousness and to instill personal responsibility for your own safety. You must anticipate the need to rapidly escape, plan primary and alternative escape routes, and act appropriately in an emergency," says Maldonado.

The fire marshal's Inspections Division, which follows NFPA 101®, *Life Safety Code*®, conducted random inspections of nightclubs and bars to identify hazardous conditions. The results of those inspections showed an astonishing 96 percent of the establishments had exit violations. Specifically, of the 189 establishments inspected, 182 failed. Violations ranged from poorly illuminated exit signs to exit doors that were padlocked shut. The fire marshal's office employees realized the enormous potential for loss of life considering that there are thousands similar nightclub establishments in the state.

Due to Texas's vastness and the fire marshal's office limited inspection staff, sending an inspector to each establishment was not feasible. With egress access identified as an impediment to speedy evacuations, the fire marshal's office directed its attention to a second, equally important problem: the strong human tendency, in an emergency, to try to go out the same door they came in. It

Photograph: Corbis

appeared that the underlying problem was an issue of human behavior. Failure to develop an escape plan is a key factor in many large loss fires.

It seemed logical to get a message out to those who most frequently patronize bars and nightclubs—students aged 18-34. The fire marshal's office is headquartered in Austin, the "Live Music Capital of the World" known for both higher education and a thriving bar and nightclub scene. For example, each year the city hosts the SXSW (South by Southwest) Music and Media, which showcases hundreds of musical acts from around the globe on over 50 stages in downtown Austin.

Ideal laboratory

The fire marshal's office concluded that the University of Texas at Austin, with 55,000 students, seemed the ideal laboratory in which to conduct a pilot outreach project.

To understand the mindset of the target market, the fire marshal's office commissioned a study of local university students that was administered by MBA candidate students from St. Edward's University in Austin. Among the findings:

- Eighty-two percent of students claim to have "no strategy" for exiting a venue and rarely consider how they would escape from a fire.
- Eighty percent of students use alcohol, with 23 percent engaging in frequent drinking. Alcohol impairs judgment and physical coordination and makes quickly escaping from a fire even more difficult.

The very nature of nightclubs makes them hazardous places to be when a fire breaks out: smoking and drinking are ubiquitous and large numbers of people are crammed into small areas. In addition, exit signs can be difficult to see through dim lighting and smoke, especially in an emergency. Some older, smaller venues lack the sprinkler systems required in larger structures, rendering them particularly dangerous. Clearly, the time to devise an escape plan is before you need one.

Development of 'Have an Exit Strategy'

From the beginning, collaboration played a large role in the project. The Lower Colorado River Authority (LCRA), a Texas conservation and reclamation district, shared the fire marshal's office concern about the possibility of such a tragedy occurring in Texas. Both agencies felt a strong call to action, and in 2004, representatives from each sat down together to come up with a plan.

ThinkStreet, an Austin-based advertising and marketing firm, signed on as a third partner when it agreed to lend its best creative minds to work on the project pro bono. *Have an Exit Strategy* was born.

With a clear message, a target audience, and a desired outcome identified, the fire marshal's office approached representatives at the University of Texas at Austin to determine their interest in bringing the message to the university's students. University officials responded enthusiastically and plans were made to roll out the message on campus during Fire Prevention Week. The fire marshal's office, the university, the LCRA, and ThinkStreet met several times over the course of two years to fine-tune the *Have an Exit Strategy* message.

The implementation

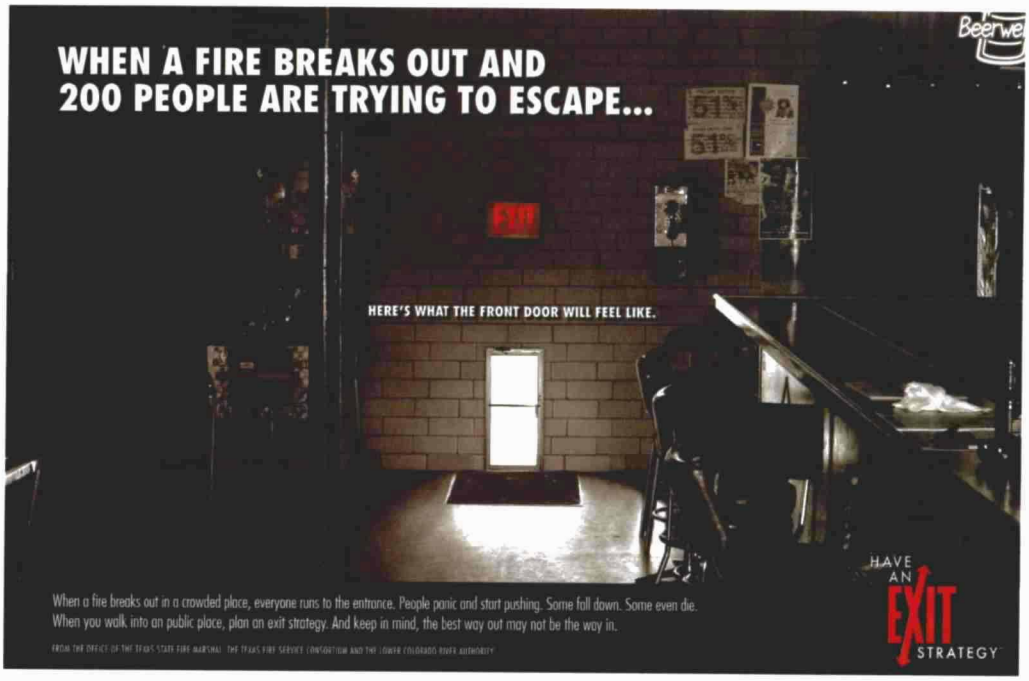
As Fire Prevention Week kicked off on October 4, students were met with *Have an Exit Strategy* posters, bus posters, door hangers, magnets, and public service announcements on campus television. The university even enlisted the help of Longhorn's head football coach Mack Brown and women's basketball head coach Jody Conradt. The two well-known coaches recorded messages, which were played on the Godzillatron and Jumbotron® screens before games reminding fans to make note of the emergency exits at the University of Texas Darrell K. Royal-Texas Memorial Stadium.

Campus risk management officials and student groups helped distribute items at student orientation sessions and posted printed materials in high traffic areas such as dining halls, dormitories, libraries, and recreation facilities.

To complement visual and tangible items, a *Have an Exit Strategy* Web site (www.haveanexitstrategy.com) went live in September. The fire marshal's office aimed to create as much repeat exposure as possible in the hopes that the logo and message would imprint on the collective student subconscious. The fire marshal's office hoped that checking for two exits would become as second nature as looking both ways before crossing the street.

Beyond Austin

The *Have an Exit Strategy* message was not confined to the 350-acre University of Texas campus. Because of a comprehensive media awareness campaign conducted by ThinkStreet and the fire marshal's office, the initiative attracted growing attention from other organizations and the Office of the Texas Governor. In October 2006, Governor Rick Perry issued a proclamation designating October 4 through October 8 as Texas Fire Prevention Week. In the weeks leading up to Texas Fire Prevention Week, more than 53 Texas



cities, schools, universities, and fire departments contacted the fire marshal's office to request *Have an Exit Strategy* campaign materials they could duplicate and use in their own communities. Through the generosity of LCRA and ThinkStreet, the fire marshal's office was able to provide more than 18,000 educational pieces to these organizations at no cost. Their participation greatly increased the campaign's reach and exposure.

The Texas Fire Service Consortium, comprised of organizations such as the Texas Fire Chief's Association, the State Firemen's' and Fire Marshals' Association, the Texas State Association of Firefighters, and the State Association of Fire Emergency Districts, readily endorsed *Have an Exit Strategy* and was instrumental in spreading the word and encouraging communities and individuals to participate in local, grassroots awareness campaigns.

What's next?

Although it will likely take months or even years of cumulative exposure to get the message out on a broad scale, the fire marshal's office is committed to doing so. The fire marshal's office has adopted the *Have an Exit Strategy* logo and slogan as its own, and remains steadfast in its commitment to support the message in any way it can. With the fire marshal's recent expansion of its Prevention Outreach Division, the *Have an Exit Strategy* message dovetails with the organization's mission to "reduce the number and severity of fires and fire related losses throughout Texas."

To keep the *Have an Exit Strategy* message alive and improve public safety on the broadest scale possible, the state fire marshal's office recently formed a partnership with the Texas Alcoholic Beverage Commission.

Under this agreement, fire marshal's office inspectors train Alcoholic Beverage Commission field personnel to recognize unsafe exits in licensed venues. After undergoing training, agents are provided with a pocket-sized reference card and toll-free number they can use to contact the fire marshal's office. Alcoholic Beverage Commission agents, who have effectual authority over licensed venues, can order immediate corrections and refer observed violations to the fire marshal's office for enforcement or referral to local fire authorities. By June 2007, more than 420 Alcoholic Beverage Commission field investigators, field auditors, managers and office employees will have completed this training.

The fire marshal's office also prepared a flyer for bar proprietors entitled "Is My Business Fire-Safe?" This useful tool serves as a "cheat sheet" for owners and employees and helps them recognize and learn to correct common egress violations. It has been provided to more than 2,500 business owners undergoing mandatory training with Alcoholic Beverage Commission due to liquor law violation.

At this year's *WSC&E*, a pre-conference seminar on campus fire safety will be offered on Friday, June 1. The program is designed for community fire education staff and campus fire prevention staff. One of the goals is to teach these professionals how to "sell" life safety messages to college students. For more information and to register, visit www.nfpa.org/wsce.

CAROLYN PEREZ is an Information Specialist for the State Fire Marshal's Office, in Austin, Texas

EDUCATIONAL SESSION

Simplifying the Accessibility (Disability) Myth

We all may become disabled, so think more about how to regulate our built environment and our programs. By Allan B. Fraser, CBI, CPCA

A clear and powerful message was sent to the American people more than 15 years ago when Congress passed the Americans with Disabilities Act (ADA), but somehow we missed the point. In some circumstances, we continue to miss the point with respect to the span of the ADA.

Right now, more than 43 million Americans have a disability. The identity of the group of Americans with disabilities is constantly changing — at any moment we ourselves could become part of this group, for maybe a short time or maybe for a long time.

Disability is not about a specific group of people. Disability is about a specific time in our lives. For some it may be temporary, for others it may be much longer. Disability is about the fourth-grader who breaks her leg falling off the playground slide and the hockey player who crashes into the boards 15 seconds into his first college game becoming instantly paralyzed from the neck down. It's about the construction worker who's nearly deaf from running a jackhammer and the person born with no arms. It's about the 30-year-old asthma sufferer and the 60-year-old office worker recuperating from bypass surgery. It's about all of us at some point in our lives. Sobering thought.

As a society, we have mistakenly adopted a mindset that divides us into two groups, "able-bodied" and "disabled." The fact is: we all will be part of the disabled community for some time in our lives. It is from that perspective that we need to think about and regulate our built environment and our programs. If we act from the perspective of what we would want when, rather than if, we become disabled, we truly will be able to make great progress for all people.

Statistical support

The statistics are quite eye opening. According

Photograph: iStock

to the U.S. Census Bureau, at the turn of the millennium in 2000, the population of the United States was 281,421,906.

Out of that total:

- 48.9 million had one or more disabilities (17.3 percent)
- 32 million were age 65 or over (11.4 percent)
- 3.3 million were age 85 and older (1.2%) and that's projected to grow to over 6 million (2.1 percent) by 2010

Recent statistics indicate that:

- 70 percent of us will have a temporary or permanent disability that makes stair climbing impossible
- 8,000 people have spinal cord injuries each year and return to homes that are inaccessible
- 32.5 million (11.5 percent) had serious hearing disabilities (in 2003)
- 18.6 million (6.6 percent) had vision disabilities (in 2003)
- 31.3 million (11.1 percent) had heart disease and reduced or limited mobility (in 2003)

The first version of the ADA that went before Congress was crafted by President Ronald Reagan's appointees to the National Council on Disability. Even at that time (late 1980s), the disability movement included conservatives as well as liberals and was unified in the view that what was needed was not a new and better brand of social welfare system but a fundamental examination and redefinition of the democratic tradition of equal opportunity and equal rights.

In just two years, Congress passed the ambitious legislation, and in 1990, President George Bush held the largest signing ceremony in history on the South Lawn of the White House, a historic moment for all people with disabilities. To some degree, passage of the ADA was brought about by members of Congress realizing their obligation to ensure civil rights for all Americans.

Global reach

The ADA is historic not only nationally but globally as well. No other mandate in the world has its scope. The ADA has unique appeal for all Americans because, unlike other civil rights categories such as race or gender, any one of us could become a member of the protected class at any moment in our lives.

The good news is that here in the United States we have developed building codes that have significantly reduced damage and injury to people and property. We have done so well with issues like fire sprinklers, rated construction, and structural stability that we have gone on to the next level and begun to address other issues that are equally important. Energy efficiency, protection of heritage buildings, and accessibility are examples of where we have taken codes beyond traditional requirements.

The current editions of NFPA 101®, *Life Safety Code®*, and NFPA 5000®, *Building Construction and Safety Code®*, reflect the needs of accessibility. The timing of major changes to federal rules applying to accessibility proved fortuitous to members of the NFPA 5000 Technical Committee on Building Systems during the last revision cycle. The July 2004 revision of *Americans with Disabilities Act Accessibility Guidelines* (ADAAG) and the 2004 changes to ANSI A117.1, *Standard on Accessible and Usable Buildings and Facilities*, provided the Technical Committee with the chance to incorporate the scoping and technical changes from the two documents into Chapter 12 of NFPA 5000. NFPA 5000 now reflects everything that relates to accessibility.

The new material from ADAAG is mainly extracted, while the technical provisions of ANSI A117.1 are incorporated by cross-referencing the specific sections.

In addition, there's guidance for supplemental escape devices, which can be used voluntarily (but are not required) to help prevent such devices from creating an unsafe condition or false sense of security. Also, there is significant Annex text added to NFPA 101 to address stairway descent devices for persons with mobility impairments.

Recently, the NFPA *Emergency Evacuation Planning Guide for People with Disabilities* (see sidebar or visit www.nfpa.org to download the planning guide) was developed with input from the disability community to provide general information on this important topic. In addition to providing information on the five general categories of disabilities (mobility impairments, visual impairments, hearing impairments, speech impairments, and cognitive impairments), the Guide outlines the four elements of evacuation information that occupants need: notification, way finding, use of the way, and assistance.

The bad news is that, while we have made a good start on accessibility in the 35 years since the original edition of ANSI A117.1 began being adopted and enforced locally, we still have a long way to go. Why does it seem to take so much time and effort to write workable codes and standards for accessibility? What makes dealing with quality-of-life issues, particularly accessibility, so difficult? After all, the goal is simple—we want everyone to have the right to the same opportunities, a right that flows directly from our Constitution. So why are we having such a hard time getting there?

What makes it so difficult is our mindset. We "know" that each one of us is unique. We certainly have many general physical features in common, such as eyes, ears, and organs. However, there are differences even in those areas, some small and some great.

We seem to believe that it's relatively easy to write code so that we're all protected in buildings that won't burn or won't collapse during an earthquake. But when it comes to accessibility and making sure that everyone can use a building with equal facility, we still have room for improvement.

We have computer software that can "read" documents to assist people with visual impairments. We are developing new tools every day. We have voice-activated software that can "type" into a computer to assist people with limited use of their hands and fingers. Our goal in developing accessible code requirements for buildings is to provide that same kind of flexibility and to accommodate everyone who uses every building. This requires that we start with the right mindset, a mindset that understands we may all need some or all of these requirements during some period in our lives.

The first regulations

The first regulations for accessibility, ANSI A117.1, were adopted in the late 1960s and early 1970s. They were successful in producing benefits for millions of people. Ramps, elevators, curb cuts, accessible toilets, and signage provided new freedom for people to get to, into, and around thousands of public facilities all over the country. Now we've learned that those adaptations are only a small part of the complete solution. We need to address audio and visual accessibility as well as mobility accessibility. What do people do once they're inside a building? Where do they sit? How good is the quality of their seat? How well can people see and hear? How might they get out of the building in an emergency?

In 1990, Congress passed the ADA, which is generally considered the flagship piece of legislation on the subject. In the act, the term disability means one of the following:

- "A physical or mental impairment that substantially limits one or more of the major life activities of a person"
- "A record of such an impairment"
- "Being regarded as having such an impairment"

The continuing existence of unfair and unnecessary discrimination and prejudice denies people with disabilities the opportunity to compete on an equal basis and to pursue those opportunities for which our free society is justifiably famous. This discrimination costs the United States billions of dollars in unnecessary expenses resulting from dependency and non-productivity and we need to break the cycle.

Congress clearly stated its purposes in passing the ADA:

- "To provide a clear and comprehensive national mandate for the elimination of discrimination against people with disabilities;
- "To provide clear, strong, consistent, and enforceable standards that address discrimination against people with disabilities;
- "To ensure that the federal government plays a central role in enforcing the standards established in the ADA on behalf of people with disabilities;
- "To invoke the sweep of congressional authority, including the power to enforce the 14th Amendment and to regulate commerce in order to address the major areas of discrimination that people with disabilities face daily."

Categories of disability

Let's look at the five general categories of disabilities.

Mobility Impairments

Wheelchair Users: People with mobility disabilities may use one or more devices, such as canes, crutches, a power-driven or manually operated wheelchair, or a three-wheeled cart or scooter, to maneuver through the environment. People who use such devices have some of the most obvious access problems. Typical problems include maneuvering through narrow spaces, going up or down steep paths, moving over rough or uneven surfaces, using toilet and bathing facilities, reaching and seeing items placed at conventional heights, and negotiating steps or changes in level at the entrance/exit point of a building.

Ambulatory Mobility Disabilities: This subcategory includes people who can walk but with difficulty or who have a disability that affects gait. It also includes people who do not have full use of their arms or hands or who lack coordination. People who use crutches, canes, walkers, braces, artificial limbs, or orthopedic shoes are included in this category. Activities that may be difficult for people with mobility disabilities include walking, climbing steps or slopes, standing for extended periods of time, reaching, and fine finger manipulation.

Respiratory Impairments: People with a

NFPA Emergency Evacuation Planning Guide for People with Disabilities

The NFPA Emergency Evacuation Planning Guide for People with Disabilities has been developed with input from the disability community to provide general information on this important topic. In addition to providing information on the five general categories of disabilities (mobility impairments, visual impairments, hearing impairments, speech impairments, and cognitive impairments), the Guide outlines the four elements of evacuation information that occupants need: notification, way finding, use of the way, and assistance. Also included is a Personal Emergency Evacuation Planning Checklist that building services managers and people with disabilities can use to design a personalized evacuation plan. The annexes give government resources and text based on the relevant code requirements and ADA criteria.

The NFPA Emergency Evacuation Planning Guide for People with Disabilities was developed in response to the emphasis that has been placed on the need to properly address the emergency procedure needs of the disability community. This Guide addresses the needs, criteria, and minimum information necessary to integrate the proper planning components for the disabled community into a comprehensive evacuation planning strategy. This Guide is available to everyone in a free, downloadable format from the NFPA Web site, www.nfpa.org.

Additionally, a link is available for users of the Guide to provide comments or changes to the Guide that should be considered for future versions. It is anticipated that the content will be updated annually or more frequently, as necessary, to recognize new ideas, concepts, and technologies.

While building codes in the United States have continuously improved, containing requirements that reduce damage and injury to people and property by addressing fire sprinklers, fire-resistive construction materials, and structural stability, equally important issues such as energy efficiency, protection of heritage buildings, and accessibility are relatively recent subjects that we've begun to address in codes.

Many newer buildings are constructed as "accessible" or "barrier free" to allow people with disabilities ready access. Equally important is how building occupants with a variety of disabilities are notified of a building emergency, how they respond to a potentially catastrophic event, whether or not appropriate features or systems are provided to assist them during an emergency, and what planning and operational strategies are in place to help ensure "equal egress" during an emergency.

Visual as well as audible fire alarm system components, audible/directional-sounding alarm devices, areas of refuge, stair-descent devices, and other code-based technologies clearly move us in the right direction to address those issues. This Guide is a tool to provide assistance to people with disabilities, employers, building owners and managers, and others as they develop emergency evacuation plans that integrate the needs of people with disabilities and that can be used in all buildings, old and new. The Guide includes critical information on the operational, planning, and response elements necessary to develop a well-thought-out plan for evacuating a building or taking other appropriate action in the event of an emergency. All people, regardless of circumstances, have some obligation to be prepared to take action during an emergency and to assume responsibility for their own safety.

respiratory impairment can generally use the building components but may have some difficulty due to dizziness, nausea, breathing difficulties, tightening of the throat, and difficulty concentrating.

Visual Impairments

This category includes people with partial or total vision loss. Some people with a visual disability can distinguish light and dark, sharply contrasting colors, or large print but cannot read small print, negotiate dimly lit spaces, or tolerate high glare. Many people who are blind depend on their sense of touch and hearing to perceive their environment. For assistance while in transit, walking, or riding, many people with visual impairments use a white cane or have a service animal. If a person cannot use or operate some part or element of a standard building system or access displayed information, like signage, because that element or information requires vision in order to be used or understood, then that person has a visual impairment.

Hearing Impairments

People with partial hearing often use a combination of lip reading and hearing aids, which amplify and clarify available sounds. Echo, reverberation, and extraneous background noise can distort hearing aid transmission. People who are deaf or hard of hearing and who rely on lip reading for information must be able to clearly see the face of the person who is speaking. Those who use sign language to communicate may be adversely affected by poor lighting. People

Figure 1: Basic Space (Accessibility)

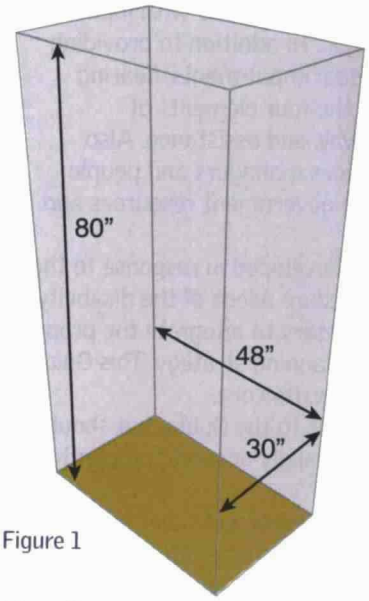


Figure 1

Clear floor space—30" x 48"

Protrusion Limit—80" above finished floor (or minimum headroom)

Figure 2 and 2a: Basic Reach—Unobstructed

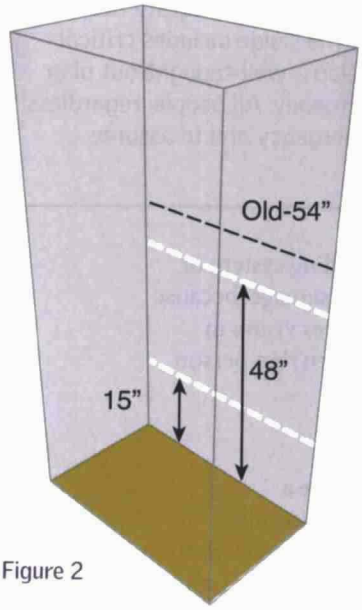


Figure 2

Not less than 15" above finished floor

Not more than 48" above finished floor (formerly 54" and still OK to leave there).

2a: Correct Placement of Outlets, Switches, and Controls

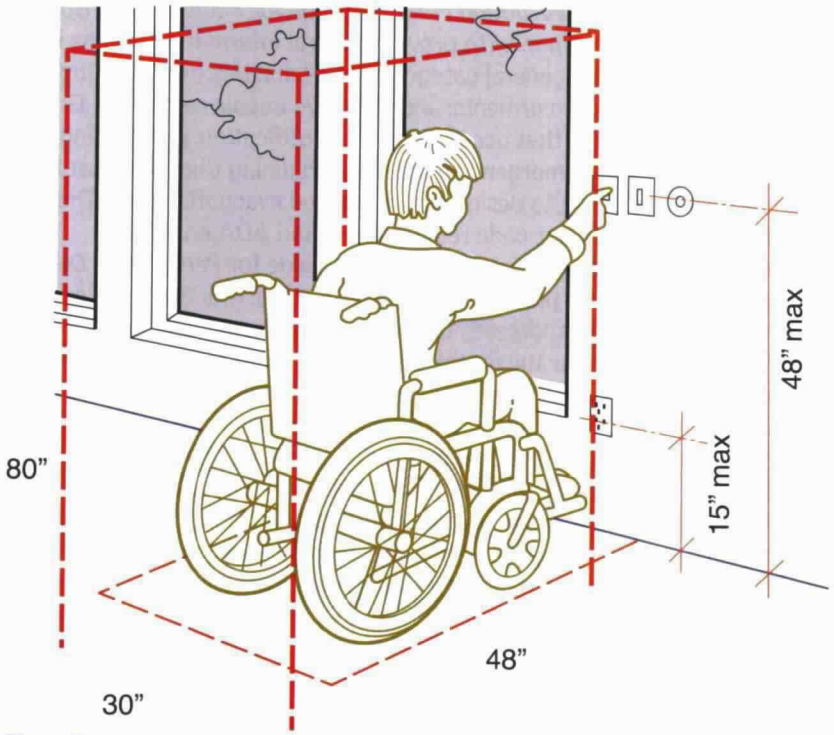


Figure 2a

who are hard of hearing or deaf may have difficulty understanding oral communication and receiving notification by equipment that is exclusively auditory, such as telephones, fire alarms, and public address systems.

Generally speaking, if a person cannot receive some or all of the information emitted by a standard building system, like a fire alarm horn or voice instructions, then that person has a hearing impairment.

Speech Impairments

Speech impairments prevent a person from using or accessing information or building features that require the ability to speak. Speech impairments can be caused by a wide range of conditions, but all result in some level of loss of the ability to speak or to communicate clearly.

Cognitive Impairments

Cognitive impairments prevent a person from using or accessing building features due to an inability to process or understand the information necessary to use those features. Cognitive impairments can be caused by a wide range of conditions, including but not limited to developmental disabilities, multiple sclerosis, or depression, but all result in some decreased and impaired level in the ability to process or understand the information received by other senses.

Other Impairments and Multiple Impairments

In addition to people with permanent or long-term disabilities, others have temporary conditions that affect their usual abilities. Broken bones, illness, trauma, or surgery can affect a person's use of the built environment for a short time. Diseases of the heart or lungs, neurological diseases with a resulting lack of coordination, arthritis, and rheumatism can reduce a person's physical stamina or cause pain. Other disabilities include multiple chemical

sensitivities and seizure disorders. Reduction in overall ability is also experienced by many people as they age. People of extreme size or weight often need accommodation as well.

Simplifying the concepts

The details and the wording of accessibility regulations can make this all very overwhelming, but the basic concepts are really quite simple. We simply need to keep in mind a basic volume of space and then the proper locations for devices, controls, fixtures, obstructions, etc. relative to that volume of space. It is that simple and it will cover the vast majority of all accessibility requirements.

Figure 1 is the basic volume of space. Nothing should be allowed to project into this box. If the design will allow this box to move everywhere through the building, we've made it accessible.

Figures 2 & 2a show the basic location for controls, devices, etc. to be put on the wall surface of the basic box to make them accessible. Figures 3 & 3a detail where and how far outside the basic box you can locate controls, devices, etc. where a side (parallel) approach is used and still have them qualify as accessible.

Figures 4 & 4a detail where and how far outside the basic box you can locate controls, devices, etc. where a forward approach is used and still have them qualify as accessible.

Educational sessions planned

An educational session at this year's *WSC&E* focuses on NFPA's new planning guide for people with disabilities. This program will be presented Monday, June 4 from 11:30 a.m. to 12:30 p.m.

For more information and to registered for the *WSC&E*, visit www.nfpa.org/wsce.

ALLAN B. FRASER, CBI, CPCA, is a Senior Building Code Specialist with NFPA. He is also the author of the NFPA Emergency Evacuation Planning Guide for People with Disabilities.

Figure 3 and 3a: Basic Reach—Obstructed

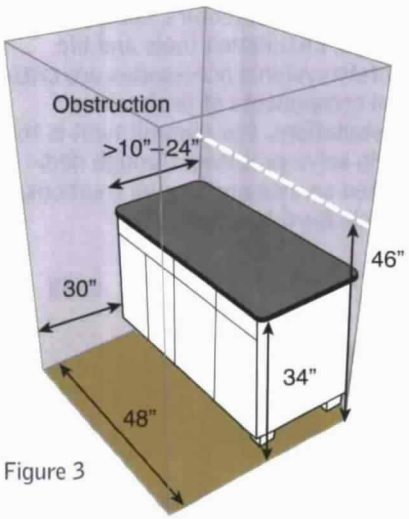
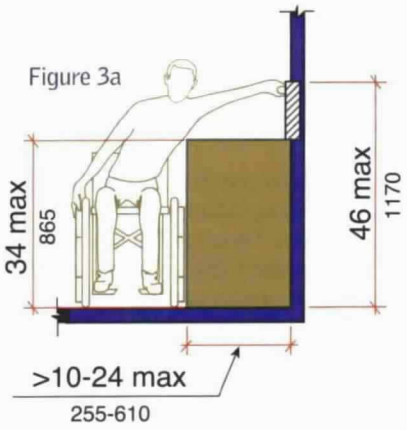


Figure 3

Side Reach
Obstruction less than 34" above finished floor

Device not more than 46" above finished floor



Keep these four simple figures in mind when designing and wiring buildings. Remember, the fact is that we all will be part of the disabled community for some period in our lives. If we act from the perspective of what we would want when, rather than if, we become disabled, we truly will be able to make great progress and great buildings for all of us.

Figure 4 and 4a: Basic Reach—Obstructed

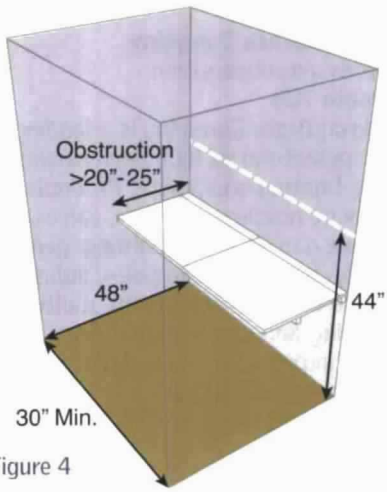


Figure 4

Forward Reach
Obstruction between 20" and 25" from wall

Device not more than 44" above finished floor

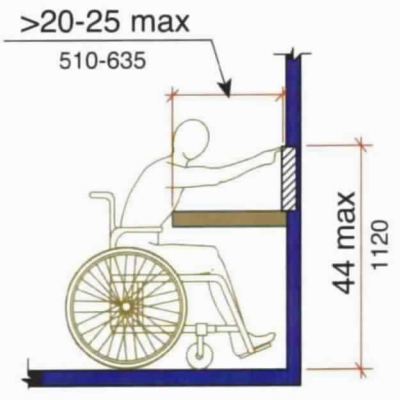


Figure 4a

3M Company
www.3M.com/novec1230fluid
Booth 563
3M will display passive and active fire protection products including new 3M™ Pass Through Device. The complete product line includes other passive solutions as well as 3M™ Novec™ 1230 Fire Protection Fluid. Novec 1230 fluid, a sustainable technology, replaces Halon and other global warming alternatives.
Circle Card Number 072

Advanced Fire Systems Inc.
www.afsi.us.com
Booth 669
Advanced Fire Systems is an independent, privately owned, manufacturer of fire alarm detection products with headquarters in Massachusetts. Founded in 2004, manufacturing a wide range of standalone and networked intelligent analog control panels and a large array of alarm system peripherals including graphic annunciators, digital fire communicators, and PC-based installation, commissioning, and diagnostic tools. The product line includes a full range of detection and signaling devices.
Circle Card Number 073

AES-IntelliNet
www.aes-intellinet.com
Booth 1131
AES-IntelliNet is the leader in delivering high quality wireless alarm communications networks to the fire and security industry for commercial, industrial and military applications. Users of AES-IntelliNet networks gain significant communications and cost advantages while continuing to meet the high standards of reliability required for the fire and security industry.
Circle Card Number 074

Air Products and Controls Inc.
www.ap-c.com
Booth 143
Air Products and Controls provide code compliant application and installation solutions to life safety professionals across the nation. Our duct smoke detectors, control relays, installation tools and life safety systems accessories are critical components of professional installations. Our commitment is to help solve problems through dedicated service and unique solutions.
Circle Card Number 075

AirSense Technology USA
www.airsense.us
Booth 577
AirSense manufactures an aspirating smoke detection product line called Stratos. Stratos embodies many unique features to maximize and increase reliability. Stratos utilizes a patented system of Perceptive Artificial Intelligence called Classifire. Classifire continually adjusts the detectors sensitivity to maintain a consistent performance and to provide the earliest warning of fire.
Circle Card Number 076

Akron Brass Company
www.akronbrass.com
Booth 705
Akron Brass Company is a leading manufacturer of high performance fire fighting equipment. Products include nozzles, monitors, valves, scene and vehicular lighting, generators, cord reels, pike poles, industrial systems, foam equipment, multiplexing and other related fire fighting equipment. Tested. Proven. Trusted. For 85 years.
Circle Card Number 077

AlarmSaf
www.alarmsaf.com
Booth 710
AlarmSaf manufactures highly reliable power systems for life safety applications including fire, security, CCTV and access control systems integration, NAC signaling and building automation. Beacon power management systems offer flexibility, support additional battery back-up requirements and meet the latest NFPA and UL/ANSI standards. NEW rack mount power supplies available.
Circle Card Number 078

Amerex Corporation/ Getz Manufacturing
www.amerex-fire.com
Booth 705
Leading manufacturer of hand portable and wheeled extinguishers, fire suppression systems for applications including; off-road vehicle, small front-engine bus, restaurant kitchen, paint spray booths and other industrial hazard areas, clean agent systems for computer rooms and data storage. Getz Manufacturing servicing equipment.
Circle Card Number 079

Amfuel
www.amfuel.com
Booth 1272
The Amfuel Fabritank is a completely enclosed water storage tank, custom made to meet specific site requirements in sizes up to one million gallons. Fabritank enables private industry to acquire on-site fire protection water supply, which is attractive, requires low maintenance, easily installed and at a low cost.
Circle Card Number 080

Ampco Safety Tools
www.AmpcoSafetyTools.com
Booth 615
Ampco Safety Tools is the largest producer of non-sparking, non-magnetic, and corrosion resistant hand tools. Serving industries since 1922, we provide the most comprehensive inventory, superior service, and a limited lifetime warranty. Most tools are made in the USA and approved

Reliable and Effective.

What more could you want?

How about a complete line of quality fire protection equipment, forty years of design and manufacturing experience, Underwriters Laboratories, Factory Mutual, and U.S. Government certifications, expert technical support, a global network of distributors, friendly and efficient customer service, competitive pricing, and delivery when you need it? That's what you'll get from Buckeye Fire Equipment Company.

Portable and Wheeled Fire Extinguishers
- Dry Chemical
- Carbon Dioxide
- Class K Wet Chemical
- Halotron I®
- Water and Water Mist

Firefighting Foams and Hardware
- AFFF
- AR-AFFF
- Class A
- Fluoroprotein
- Training Foam
- Low Temp
- Bladder Tanks
- Proportioners
- Monitors
- Foam Carts
- Foam Generators
- Handline Nozzles

Fire Suppression Systems
- Clean Gases- HFC-227ea & Carbon Dioxide
- Restaurant Pre-engineered Wet Chemical
- Industrial Dry Chemical
- Fire Detection Products

Automatic Spot Protection
- Dry Chemical
- Halotron I®

Mounting Hardware
- Wall Brackets
- Vehicle Brackets

Buckeye Fire Equipment Company

When you want it all

Visit us at buckeyef.com or call 704.739.7415 for more information about the wide selection of products available from Buckeye Fire Equipment Company.

by Factory Mutual. Custom tools and kits available.
Circle Card Number 081

Amtrol Inc.
www.amtrol.com
Booth 402
Amtrol, the world-leading provider of advanced water systems solutions is pleased to introduce our new line of Fire-X-Trol® expansion chamber tanks for wet pipe sprinkler systems. The UL-listed and ASME-compliant Fire-X-Trol expansion chamber tanks reliably protect your system from pressure increases that result from temperature change.
Circle Card Number 082

ANSUL/Tyco Fire Suppression Group
www.ansul.com
Booth 339
Discover the innovations offered by the Tyco Fire Suppression Group featuring the ANSUL® and PYRO-CHEM® brands. We will demonstrate our INERGEN®, SAPPHIRE®, and R-102™ fire suppression technology while displaying our broad line of fire protection products and training opportunities.
Circle Card Number 083

Apollo Fire Detectors America
www.apollo-fire.com
Booth 143
Continuing to facilitate your "Freedom to choose ..." Apollo Fire Detectors is showing its intelligent fire detector ranges XP95 and Discovery. Choose XP95 for straightforward buildings and Discovery for sophisticated installations. A range of interface modules complements the detector ranges. Also on show is the Series 65 range of conventional detectors.
Circle Card Number 084

Arch Wood Protection, Inc.
www.wolmanizedwood.com
Booth 617
Arch manufactures various wood treating chemicals and licenses production of Dricon® fire retardant treated wood and other widely known brands of pressure-treated wood, including Wolmanized® wood. Also available: FRX® exterior fire retardant treated wood.
Circle Card Number 085

Arthur J. Hurley Company, Inc.
www.hurleywire.com
Booth 1069
Arthur J. Hurley Company, Inc., established in 1929, is the largest family-owned and operated electrical wire and cable distributor in New England; stocking an extensive line of 2 Hour Rated Fire Safety/Circuit Integrity Cable, Fire Alarm, IMSA, Instrumentation, SCADA and Control Cable.
Circle Card Number 086

ASCO Power Technologies/ Firetrol Brand Products
www.firetrol.com
Booth 282
For over 30 years, Firetrol has been a leading manufacturer of Fire Pump Controllers. Stop by booth 282 to see our latest products and innovations, and experience a little MAGIC as well.
Circle Card Number 087

Auburn Manufacturing, Inc.
www.auburnmfg.com
Booth 287
Auburn Manufacturing, Inc. is the leading maker of hot work safety fabrics in the U.S., with 17 of its fire-resistant fabrics tested and approved to FM4950, a standard with rigorous performance-based fire and thermal testing conducted by FM Approvals. Auburn also prints the welding blanket, curtain, or pad rating on its fabrics for easy identification.
Circle Card Number 088

AuSuM Systems
www.ausum.net
Booth 287
Advanced web-based and field software allows underwriters to automate their entire premium audit and/or loss control process - from assignment to submission of final reports - greatly improving efficiency. The process is a safe, complete, paperless, real-time, data-centric system that controls audit and survey operations like never before.
Circle Card Number 089

Automation Displays, Inc.
www.adipanel.com
Booth 778
Manufacturer of UL 864-UUKL Listed smoke control and graphic fire alarm annunciators. Panels can be wired to our Z-Card serial Interface circuit or customer driver cards. We manufacture UL-Listed Firefighter's Smoke Control Panels for most of the major fire alarm and building automation systems. We can help you meet the requirements of UL 864 ninth edition, NFPA92 and all associated state or local building codes. Contact us for custom control panels, custom enclosures for all types of environments. Annunicator panels for small or large projects. Communication interface panels. Control consoles with roll tops covers to secure equipment. UL508, Industrial Control Panels.
Circle Card Number 090

axonX LLC
www.axonx.com
Booth 969
axonX expands its product line, embedding the powerful SigniFire™ fire, smoke and motion detection algorithms into an IP network camera powered by a digital signal processing (DSP) video chip, providing a lower cost solution for advanced fire detection while leveraging the proven benefits of an IP network camera security system.
Circle Card Number 091

Badger Fire Protection
www.badgerfire.com
Booth 657
Badger Fire Protection is a major supplier of commercial and industrial portable fire extinguishers, portable extinguisher service parts and recharges. Badger also markets Range

Compliance Corner

UL Leads the Way in Regulatory Expertise and Support

From continuous education to readily available compliance tools, Underwriters Laboratories (UL) is committed to providing fire inspectors and other authorities having jurisdiction (AHJs) with the resources they need when they need it.

We know how important it is for regulators to have the most up-to-date information and resources to stay current with the ever-changing regulatory landscape. That's why, as part of our public safety mission, we provide AHJs with continuous training and information on current fire code requirements and future industry trends.

The training and resources you demand

Our seminars and presentations, led by UL's regulatory experts, cover the most relevant issues related to your work. We also offer an exclusive set of compliance tools that are available to you at your convenience.

The Online Certifications Directory lets you verify UL Listings, use of UL certified products and product safety standards. For those situations in the field when you don't have access to an Internet connection, our Fire Product Directory CD contains product information that fire inspectors and plan reviewers need. And our code correlation databases bridge the gap between product certifications and code requirements.

And through our Regulatory Support Services Web site, you can learn about new product categories and public notices, and order publications available only to AHJs.

A commitment to regulatory issues

Our long history of technical expertise and close relationships with regulators means we have the experience to help you with the tough decisions you need to make in the field. Our dedicated staff of regulatory experts ensures product standards are maintained to cover latest changes in technology and harmonized to codes used in the building environment, so you can be confident that UL certified products have been rigorously tested and comply with applicable nationally recognized fire and life safety installation codes.

Additionally, our staff is actively involved in the code development process, which means we not only understand how standards correlate with installation requirements, we can also help you anticipate future code development trends.

Our commitment to public safety also extends to the resources we devote to developing state-of-the-art testing facilities. Our Fire Protection Facility and Security & Signaling Center of Excellence in Northbrook, Ill., support the certification of many types of life safety and security equipment bearing the UL Mark.

As part of our public safety mission, we provide AHJs with continuous training and information on current fire code requirements and future industry trends.

Over the years, we have invested millions of dollars to design and create a setting that includes a large-scale fire test facility to simulate real-life, high-piled or rack storage commodity situations up to a height of 45 feet; a 10 MW heat release calorimeter that can be used for determining the fire hazard classification of stored products; and a 13,500-square-foot Security & Signaling Laboratory that can handle a variety of products. We complement the testing capabilities with analytical services that include simulating fire environments using fire models. These facilities, coupled with the technical expertise of our staff, allow UL to continue our long tradition of leading the way in public safety.

All of this is why AHJs are most comfortable accepting the UL Mark and prefer to work with UL more than any other certification organization.

For more information about how UL aids regulators, contact UL's Regulatory Services Department toll-free at 1-800-595-9844 or visit www.ul.com/regulators.

EXHIBITOR SHOWCASE

Guard pre-engineered commercial kitchen and Industry Guard industrial pre-engineered fire suppression systems. Badger. First to a fire.
Circle Card Number 092

Beijing Hover Technology Development
www.bjhover.com
Booths 923 and 815
Power Sources. Four mounting type – wall, table, panel and box. Uninterrupted direct current output. Perfect management function for battery. Voice Evacuation System: 4-channel and 75W per line. Broadcast of alert and evacuation message. Short/open circuit report. Telephone Communication System: large LCD, blue backlight display. Communication between main set and extensions.
Circle Card Number 093

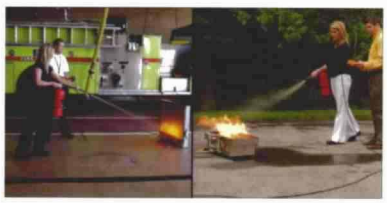
Bellevue University
www.bellevue.edu
Booth 505
Free evaluation of training toward a Bachelor's Degree – all online. Receive credit for FF I/II training, EMT, First Responder, military, etc. There are 21 Bachelor's Degree completion programs and 9 Master's Degree programs available. Work at your schedule. Minimum 15 months for the Bachelors; 16-18 for your Masters. Fully accredited.
Circle Card Number 094

BlazeMaster® Fire Sprinkler Systems
www.blazemaster.com
Booth 675
BlazeMaster® CPVC Fire Sprinkler Systems. Now listed for more types of applications than any other Nonmetallic System. Faster: No pre-fabrication; lightweight material and solvent cement joining system decreases installation time. Cost effective: Decreased labor and maintenance costs compared to metal systems. Reliable: Corrosion resistant with low flame spread and low-smoke emission levels.
Circle Card Number 095

Bradford Industries
www.pyroblok.com
Booth 278
Pyroblok™ is a family of liquid coatings, applied to metals, paper & wood, fiberglass, rigid plastics (including Lexan) and man-made fabrics that forms a reactive refractory to fire and heat.
Circle Card Number 096

BS&B Pressure Safety Management, LLC.
www.bsbsystems.com
Booth 887
BS&B Pressure Safety Management LLC manufactures high-quality explosion protection systems that are marketed throughout North America and world markets. Its Type IPD chemical isolation and suppression system provides explosion protection for process manufacturing plants handling combustible powders. The system meets stringent requirements of NFPA 654, NFPA 68, and NFPA 69.
Circle Card Number 097

BuildingReports.com, Inc.
www.buildingreports.com
Booth 137
BuildingReports.com, Inc., (BRC) is the industry leader in web-based wireless inspection reporting, which allows building owners and property managers to instantly access property data through consistent, reliable and uniform reporting worldwide.
Circle Card Number 098



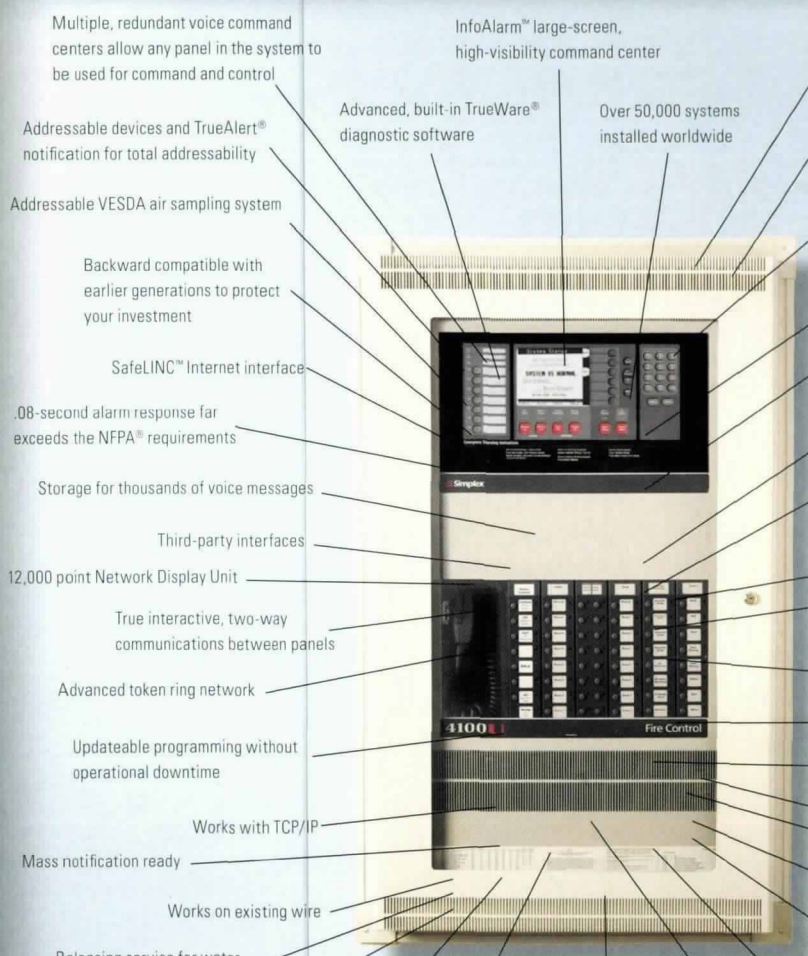
BullEx Digital Safety
www.bullexsafety.com
Booth 1041
BullEx™ Digital Safety provides solutions for safe and effective fire extinguisher training. The Intelligent Training System™ and HotShot™ training systems run on compressed air and water, eliminating the need for costly CO2 and dry-chem extinguishers. They provide realistic training, simulating class A, B, or C fires with varying difficulty levels.
Circle Card Number 099

Bulwark Protective Apparel
www.bulwark.com
Booth 978
Bulwark Protective Apparel introduces the lightest weight flame resistant cotton shirt available today. Excel-FR SEG6KH dress uniform shirt is available in khaki, lighter color for the hotter climates. This 5.25 oz. twill Excel- FR dress uniform shirt will keep you cool through spring, summer and fall months.
Circle Card Number 100

C/S Construction Specialties Co.
www.c-sgroup.com
Booth 886
With over 35 years of experience in the field of specialty venting, C/S has become the leader in specialty venting and field testable solutions. C/S explosion, tornado, flood, fire suppression, smoke and heat vents are all designed to provide cost effective, code compliant solutions to your building's specialty venting requirements.
Circle Card Number 101

Cease Fire LLC
www.ceasefire.com
Booth 714
Cease Fire combines its unique ABC powder with DuPont's FE-227 EPA approved fire extinguishing agent to create a dual-agent gel that provides efficient fire suppression and prevents re-ignition. Each unit is completely self-contained and pre-engineered, especially useful for areas where water is not available or is not a viable option.
Circle Card Number 102

READY FOR TWO THINGS: I) ANYTHING. 2) EVERYTHING.



A fire alarm system should do more than detect fires. It should be the focal point of a complete life-safety solution that integrates security, communications and other critical applications. The Simplex® 4100U fire alarm system does. It's flexible, expandable, easy to use, and prepared for everything. So you're ready for anything. Learn more at www.simplexgrinnell.com/besafe or 1-800-746-7539.

SimplexGrinnell BE SAFE.

Simplex Fire Detection Systems

SimplexGrinnell® is a business unit of Tyco Fire & Security.

CEC Combustion Services Group
www.combustionsafety.com
Booth 883
CEC Combustion Services Group is your one-stop shop for improving safety, efficiency, reliability, quality and downtime. If your facility or process burns a fuel, we have services that can help you. Combustion System Testing & Inspections, Customized Training, Engineering Services, Turnkey Upgrades, Burner Tuning and Troubleshooting.
Circle Card Number 103

Chemguard
www.chemguard.com
Booth 1162
Chemguard has a 25-year history of manufacturing UL Listed/FM approved fire fighting foams and equipment. The complete line of Chemguard special hazard products includes high expansion, AFFF systems, LNG, ethanol, dry chemical, balanced pressure pump skids, USCG Stations and custom trailer units.
Circle Card Number 104

Chemtura
www.chemtura.com
Booth 851
Fast-acting FM-200® Waterless Fire Protection Systems protect data centers, electronics, records, art, and other high-value assets from fire and water damage. Safe for people, equipment, and the environment, FM-200 extinguishes Class A, B, and C fires within seconds with no collateral damage. Free CD shows how fast FM-200 stops fire.
Circle Card Number 105

Clarke Fire Protection Products
www.clarkefire.com
Booth 323
Clarke Fire Protection Products provide UL/FM certified diesel engines, ranging from 41 to 575 horsepower, directly to pump manufacturers worldwide for their assembly into fire protection systems. To meet the new NFPA 20 2007 code, we have a variable speed diesel engine, which will limit system over pressure.
Circle Card Number 106

CLA-VAL
www.cla-val.com
Booth 1065
Since the 1950s, Cla-Val has supplied superior quality automatic control valves for commercial and industrial fire protection applications. Cla-Val is a global company with a 22-acre manufacturing and foundry complex in Newport Beach, California, in addition to production facilities in Canada, Switzerland, France and the United Kingdom, and a worldwide network of manufacturer's representatives.
Circle Card Number 107

Clifford of Vermont/ A Power & Tel Comany
www.cliffordvt.com
Booth 201
Clifford of Vermont, a Power & Tel company, is a national distributor of wire, cable, installation hardware, tools and test equipment for communications, control and local area network solutions. Featured cables include fire alarm, sound, security, burglary, coax and electronic in PVC and plenum, instrumentation, IMSA, Spec, and fiber optic.
Circle Card Number 108

Columbia Southern University
www.columbiasouthern.edu
Booth 386
Columbia Southern University is an online, accredited worldwide educational institution of higher learning. CSU offers academic programs in a flexible, user-friendly format. CSU was developed as a distance learning University; allowing working adults to achieve their goals. CSU believes in personal service for our students. Only through our students' success do we succeed.
Circle Card Number 109

Comark Corporation
www.comarkcorp.com
Booth 1232
Comark manufactures UL 864 recognized computers and displays. We provide configuration control and UL 864 File submission & maintenance. Using Intel PIII or P4 CPUs, all systems are tested and burned-in to ensure reliable operation. We have your Fire Alarm, Access Control, and Building Automation solutions.
Circle Card Number 110

Containment Solutions
www.containmentsolutions.com
Booth 387
Flowtite fire protection tanks from Containment Solutions (CSI) are lightweight, watertight and non-corrosive. Three important product features to consider for owners and engineers designing water storage systems. Over 300,000 CSI designed tanks have been installed around the world. We offer a full line of water and petroleum tanks and accessories.
Circle Card Number 111

Cooper/MEDC
www.medc.com
Booth 706
MEDC design, manufacture and market a range of field devices for fire & gas and communications systems with worldwide certifications include ATEX/UL/FM/GOST /CSA/CQST. The range included call points, horns, speakers, strobes, status lamps, lighting and control and distribution equipment for use in harsh environments/potentially explosive atmospheres.
Circle Card Number 112

Cooper Wheelock
www.cooperwheelock.com
Booth 539
Cooper Wheelock Provides Safety and Security with advanced fire and life safety products. We design and manufacture an extensive range of devices for emergency alert management, notification, multi-function communications and mass notification. Our products operate in complex and harsh environments, and meet your most stringent requirements. Customers can rely on Cooper Wheelock.
Circle Card Number 113

VICTAULIC • FIRE PROTECTION SYSTEMS

PERFORMANCE

NORTH AMERICA • UNITED KINGDOM • EUROPE
MIDDLE EAST • LATIN AMERICA • ASIA PACIFIC

FireLock NXT™ devices from Victaulic: innovation setting the global standard

- wet, dry, deluge, preaction
- 13psi operating pressure for ALL applications
- light-weight, compact, few moving parts
- ships bare or pre-trimmed, ready to install right out of the box
- lowest friction loss in the industry
- all internal parts easy to access for maintenance

UL LISTED FM APPROVED LPCB

Built upon more than 80 years of engineering excellence and a broad line of fire protection products and services

www.victaulic.com
1.800.PICK-VIC

Victaulic®
Piping. Systems. Solutions.

Cornell
www.cornell.com
Booth 279
CORNELL provides two solutions for communication and alarm systems for emergency response and evacuation of facilities. AURA offers Alert Monitoring, Broadcast Notification, and Automatic Documentation. Our ADA Rescue Assistance System was designed to meet the special needs when seeking assistance in evacuating a building, providing two-way communication.
Circle Card Number 114

CorrView International, LLC
www.corrview.com
Booth 1014
New pipe corrosion monitor for fire protection systems. Threaded into any port, CorrView produces a brilliant color change warning should a corrosion condition develop due to any cause. Totally passive. No power or maintenance requirement. Averts the destruction of critical and costly infrastructure. Prevents clogged piping. Simple, low-cost protection.
Circle Card Number 115

Croker Division Fire – End & Croker
www.croker.com
Booth 589
Croker will display the latest in pressure reducing valves, fire department Storz connection and other hose equipment accessories.
Circle Card Number 116

Crowcon Detection Instruments
www.crowcon.com
Booth 687
Reliable and cost effective fixed and portable, combustible and toxic gas detection and fire detection equipment.
Circle Card Number 117

Cummins Fire Power
www.cumminsfirepower.com
Booth 302
Cummins Fire Power manufacturers of full line of UL/FM certified diesel drivers from 31-605hp exclusively using Cummins diesel engines. Cummins Fire Power serves customers in more than 160 countries through the Cummins global distribution network comprising over 550 locations.
Circle Card Number 118

DENIOS, Inc.
www.thehazmatpro.com
Booth 1142
DENIOS is the leading designer and manufacturer of chemical storage, handling, and containment equipment. Our products are engineered for small (spill sumps and pallets, lockers) and large volume storage requirements (cabinets, and buildings.) In addition, DENIOS designs large area spill containment products, including automatic doorway spill barriers and our new HazBerm.
Circle Card Number 119

Digitize Inc.
Booth 469
Exhibit features: Renowned System 3505 alarm monitoring systems; New Test Mode Option; Enhanced Remote Annunciator; Muxpad II, which interfaces the most FACPs and transmits addressable data via wire, fiber, RF and Ethernet; Enhanced CGRMS automation system, with new auto-population feature; and DET-16, newest entry in Digitize's telegraph transmitter line.
Circle Card Number 120

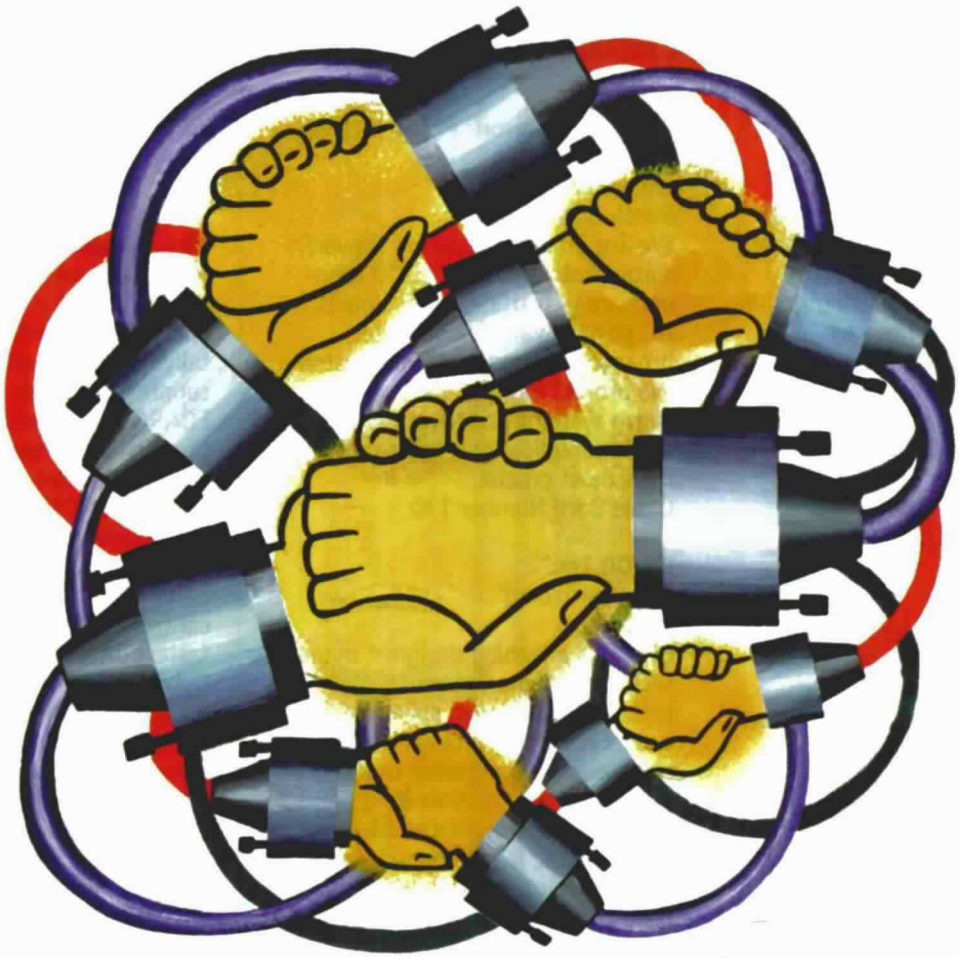
Dodgen Mobile Technologies
www.dodgenmobiletech.com
Booth 1122
Dodgen Industries has been manufacturing quality products for over 50 years, with a 25 year history in commercial products that now include mobile command centers, investigation labs, dental, medical, and veterinary clinics. Dodgen units are built from the chassis up with a focused attention to the specific needs of the users. Only the highest quality components are selected by our company to be installed in Dodgen units and we manufacture our own molded fiberglass body components.
Circle Card Number 121

Draeger Safety
www.draeger.com/ST/internet/US/en/Industries/GDS/gds_
Booth 1251
Draeger Safety Inc, is a world leader in the gas detection industry. Draeger offers a complete line of fixed gas monitoring for all combustible and toxic gases. Draeger also offers open path and flame monitors providing the customer with the "complete package".
Circle Card Number 122

Draka Cableteq USA
www.drakausa.com
Booth 957
The Lifeline family of cables by Draka is the practical approach to fire rated electrical systems. Lifeline cables use ceramified technology. The Lifeline family of cables are reliable, flexible, easily installed with standard procedures and terminations while being cost efficient.
Circle Card Number 123

DuPont
www.cleanagents.dupont.com
Booth 619
DuPont is committed to providing a full range of non-ozone depleting fire extinguishants on a global basis. Our clean agent technology improves the safety and quality of life for people around the world. Our goal in fire protection is to protect people and valuable assets--it's what matters most.
Circle Card Number 124

East Coast Lightning Equipment
www.ecle.biz
Booth 606
East Coast Lightning Equipment manufactures a complete lightning protection system component including air terminals, conductors, fittings and connectors. Products are intended for use in lightning protection systems that comply with NFPA 780.
Circle Card Number 125



Keltron Solutions Fit Right In

Universal Compatibility. It's what sets us apart in the life safety industry. Keltron's alarm monitoring systems enable you to:

- Leverage your existing communications infrastructure or create one
- Utilize your existing fire and security systems and equipment
- Enhance the functionality of your existing systems with modern technology
- Provide a remote window into your life safety systems
- Save on capital and ongoing expense

Keltron's universally compatible life safety event management systems can be configured to provide exactly what you need to protect lives and property at:

- Educational, Healthcare and Institutional Campuses
- Multi-Building Commercial, Residential, and Industrial Facilities
- Government and Military Complexes and Municipalities

Visit Keltron's booth #857 at the 2007 NFPA World Safety Conference and Exposition in Boston, June 3-5, or call 800-966-6123 to learn how Keltron solutions can fit right in for you.

KELTRON

Keltron Corporation 225 Crescent Street, Waltham, MA 02453 voice 781.894.8710 fax 781.899.9652

EXHIBITOR SHOWCASE

East Coast Security & Fire
www.ecss.com
Booth 1253
East Coast Security & Fire has over 25 years in the industry. East Coast can provide you with fire alarm products through our distributorship or design-build your fire system. Addressable fire panels, conventional fire panels, fire radio, meter boxes, voice evac, smokes, heats, strobes, pulls and CAD.
Circle Card Number 126

Eaton Cutler-Hammer
www.chfire.com
Booth 862
Eaton Corporation is a global $9.4 billion diversified industrial manufacturer of fluid power systems; electrical power quality; distribution and control products; automotive engine and intelligent truck systems. Eaton has 55,000 employees and sells products in more than 125 countries.
Circle Card Number 127

Elkhart Brass
www.elkhartbrass.com
Booth 765
Elkhart Brass is the industry's most experienced manufacturer of fire fighting equipment. For more than a century, the company has produced innovative firefighting and fire protection products that lead the industry in safety, versatility and performance.
Circle Card Number 128

Emergi-Lite
www.Emergi-Lite.Com
Booth 211
Combining high performance, reliability and cost efficiency, Emergi-Lite products are manufactured to meet the highest standards - your standards! Since 1978, Emergi-Lite has been a pioneer in the development of reliable, high-quality life safety equipment, such as our newly released Nema - 4X family of products. www.emergi-lite.com
Circle Card Number 129

Emerson Network Power, Surge Protection
www.EdcoSurge.com
Booth 604
We are Emerson Network Power, surge protection. Our EDCO products are in traffic control signals, AC power, water/wastewater, broadcast, sound and video systems. We protect industrial security/fire alarm systems and sensitive telecommunications, where reliability is most crucial.
Circle Card Number 130

ERICO Inc.
www.erico.com
Booth 788
ERICO is a leading designer, manufacturer and marketer of precision-engineered specialty metal products serving global niche product markets in a diverse range of electrical, construction, utility and rail applications. CADDY® Mechanical: Hangers, fasteners and support products for plumbing, HVAC, fire protection (sprinklers), and seismic systems.
Circle Card Number 131

Evax Systems, Inc.
www.evax.com
Booth 1139
Evax Systems, the leader in voice evacuation is now on Fire. Introducing our new fire alarm control panels: FIRE 1 and FIRE 2. We continue to manufacture the most advanced voice systems, but now offer full line integrated fire-voice systems with peripherals. Analog addressable to conventional, we have it all.
Circle Card Number 132

Fenwal Protection Systems
www.fenwalfire.com
Booth 751
Fenwal Protection Systems provides 24/7 fire detection, suppression and control for mission critical facilities, such as data centers, telecommunications facilities and control rooms. Integrated solutions include SmartOne detection, AnaLASER II air sampling system, multiple clean agent suppression options and intelligent control.
Circle Card Number 133

Fike Corporation
www.fike.com
Booth 623
Fike offers a family of environmentally friendly clean agent fire suppression products including the ECARO-25™ clean agent fire protection system, Fireraser™ for high value asset protection and the cost-effective PROINERT™ inert gas fire protection system, all specifically designed to protect irreplaceable items. Fike also offers a full line of control systems, including the fastest intelligent fire alarm system CyberCat™, and the suppression model Cheetah Xi™, both now available in an economical 50 point stand alone application version. It's Fike for all your safety needs.
Circle Card Number 134

Fire-Professionals.com
www.fire-professionals.com
Booth 1036
Dedicated to the fire safety industry, Fire-Professionals.com is a new, fast-growing web-based tool that is providing a meeting place for buyers and sellers. Looking for a company authorized to sell/service particular brands, an engineering firm to manage a project, or simply researching industry resources? Visit us.
Circle Card Number 135

Fire Fighting Enterprises
www.ffeuk.com
Booth 143
Fire Fighting Enterprises' FIRERAY range of infra-red optical beam smoke detectors provide freedom of choice to building owners, architects and fire alarm system engineers. The product range includes end-to-end, reflective and hazardous areas units.
Circle Card Number 136

Fire Sentry Corporation
www.firesentry.com
Booth 1023
Manufacturer of UV, UV/IR, IR2,

and IR3 Electro-Optical flame and fire detectors for oil/gas and petrochemical industry, automotive, finishing applications; and semiconductor wet benches and clean rooms.
Circle Card Number 137

FireFlex Systems Inc.
www.fireflex.com
Booth 521

FireFlex Systems manufactures the renowned Viking TotalPac2 integrated sprinkler systems & the FM Approved ICAF Compressed Air Foam system for fixed piping networks. With 25 percent of the density of other AFFF systems, ICAF is ideal when water supply, containment and/or drainage are an issue or when system performance is critical.
Circle Card Number 138

Firetrace International
www.firetrace.com
Booth 682
Firetrace's extensive lineup of automatic fire suppression systems is designed to protect the interior of critical machines, cabinets and enclosures. The proprietary red Firetrace Detection Tubing works with Firetrace systems 1 to 50 lbs., making Firetrace the ideal protection for electrical enclosures, server / computer cabinets, machines, fume hoods, engine compartments and other critical enclosures.
Circle Card Number 140

Fire-Lite Alarms
www.firelite.com
Booth 723
Fire-Lite Alarms, part of Honeywell Life Safety, is a leading manufacturer of quality life safety systems. Founded in 1952, Fire-Lite employs more than 600 people and operates in a 302,000 square-foot state-of-the-art manufacturing facility in Northford, CT. Fire-Lite manufactures low-to-mid sized fire alarm control communicators, remote

power supplies, annunciators and voice evacuation products.
Circle Card Number 141

FIREPRO Incorporated
www.fireproincorporated.com
Booth 937
As engineers and analysts for the fire-protection industry, our expertise focuses on designs for fire alarm, sprinkler, and special hazard fire protection, code consulting, fire incident analysis, litigation support, marketing research, and technical writing. Our goal is to reduce fire issues to understandable forms and to help select logical, cost-effective solutions.
Circle Card Number 139

FLAMEX, Inc.
www.sparkdetection.com
Booth 510
FLAMEX spark detection and extinguishing systems react in a fraction of a second to prevent dust collector fires and explosions. Factory Mutual approved since 1978. Minifog fine water spray systems for press and object protection effectively eliminate fires and minimize equipment damage. Minimax deluge valve stations provide effective suppression capabilities.
Circle Card Number 142

FlexHead Industries
www.flexhead.com
Booth 408
FlexHead Industries is the premier manufacturer of flexible sprinkler connections. FlexHead is the first and only product that has been seismically qualified for use in commercial suspended ceilings. Other benefits include simplified project management, faster occupancy, easier retrofits, and cost effective code compliance.
Circle Card Number 143

FlexSystems
www.flexsystems.net
Booth 400
FlexPatrol - A PDA based fire safety inspection software tool. Validate inspection details, create logic streams that ensure standard operating procedures are followed when inspection incidents occur, alert management when inspections need to be initiated, automated email reports, flexible, easy to configure and use.
Circle Card Number 144

FM Approvals
www.fmapprovals.com
Booth 943
FM Approvals, a recognized worldwide leader in testing and certification services, is pleased to announce new ANSI test capabilities for fire alarm signaling products, including smoke detection and control equipment.
Circle Card Number 145

FPE Software Inc.
www.fpesoftware.com
Booth 686
Fire pump evaluation program for users performing pump tests, recording results & plotting multiple curves. "THE" Sprinkler Program, sprinkler hydraulics program with supply/demand calculations, modifiable pipe diameters and fitting equivalent lengths, supply/demand graph output & more. Hydraulic Helper, collection of useful hydraulic formulas/utilities such as water supply graphing, hydraulic gradients and more.
Circle Card Number 146

GE Security
www.gesecurity.com
Booth 663
GE Security is a leader in the life safety industry providing a full range of innovative fire & life safety product solutions through a nationwide network of highly trained Strategic Partners. Covering the fire and security markets from residential to commercial, GE Security's cutting edge technology in fire & life safety, video, access control and intrusion detection systems is helping make the world a safer place.
Circle Card Number 147

Gamewell-FCI
www.gamewell-fci.com
Booth 731
FocalPoint™ is a centralized monitoring solution that allows campus-like properties to easily monitor multiple Gamewell-FCI fire alarm control panels of varied age and sophistication from one or more centrally located workstation(s).
Circle Card Number 148

General Air Products, Inc.
www.generalairproducts.com
Booth 502
We are showcasing our Residential Fire Protection Pump System, the new standard for NFPA 13D. The RFP System is everything the fire protection industry has come to expect from General Air - from our UL-listed compressors, to our FM Approved Dry Air Pac to our unparalleled customer service, we bring you only the best.
Circle Card Number 149

Gentex Corporation
www.gentex.com
Booth 215
The SSPKCLP Series is a low profile, ceiling mount, selectable candela neodymium speaker and speaker strobe. The Series mounts to a 2

1/8" x 4" deep backbox. The SSP-KCLP provides 25 or 70.7 VRMs speaker and field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W or 4W. The Series offers tamper-proof candela selections of 15, 30, 75, 95 and 115 and a frequency range of 400-4000Hz. The Series is UL1480, UL2043, UL464 and UL 1971 listed.
Circle Card Number 150

GreCon, Inc.
www.grecon-us.com
Booth 979
Spark Detection/Equipment System significantly reduces bag house and other dust collector fires. System detects process produced sparks in pneumatic conveying ducts and extinguishes them before they cause fires or explosions. System eliminates costly shutdowns, property damage, and personnel injury, can favorably affect user's insurance premiums and is Factory Mutual approved.
Circle Card Number 151

Grice Engineering, Inc.
www.soffisteel.com
Booth 1057
The Soffi-Steel System is a custom fabricated utility concealment solution designed, manufactured, and installed by Grice Engineering, Inc. The Soffi-Steel System is a protective, aesthetically appealing, economical shield that covers any size or type of exposed Fire Sprinkler System along with other utilities. Ideal for retrofit or new construction applications.
Circle Card Number 152

GST Holdings Limited
www.gst.com.cn
Booth 931
GST, established in 1993 is some of the world's leading high-tech business specializing in the design, development, manufacturing and distribution of a complete range of fire alarms systems and fire alarm network products, security systems, building automation systems and electronic power meters. GST products have obtained international recognition and are certified by UL, LPCB, and CE.
Circle Card Number 153

H3R Clean Agent Specialists, Inc.
www.h3rcleanagents.com
Booth 718

EXHIBITOR SHOWCASE

H3R Clean Agents is a major buyer, seller and recycler of Halon and other clean agents. We support the responsible management and redeployment of Halon to essential users, and facilitate the use of Halon alternatives. Call 800-249-4289 and ask about our system backup program.
Circle Card Number 154

Halma Fire and Security Division
www.halma.com
Booth 143
Providing the global life safety community with the freedom to choose from a world-class group of companies. Our group includes Apollo Fire Detectors (initiating devices), Air Products and Controls (duct detectors and control relays), Fire Fighting Enterprises (beam detectors), Klaxon (notification appliances), and Texecom (security and life safety systems).
Circle Card Number 155

Halon Banking Systems
www.halonbankingsystems.com
Booth 1261
Halon Banking Systems is a worldwide supplier of Halon and Halon related products. We buy and sell Halon worldwide. Also, provide clean agent systems.
Circle Card Number 156

Harger Lightning & Grounding
www.harger.com
Booth 289
Harger's mechanical grounding connectors provide a wide range of uses for pipe, ground rod and wire connections. They accommodate the most common Class I and Class II lightning conductors and grounding conductors 6 AWG through 4/0. Harger is your one-stop source for all your bonding and grounding needs.
Circle Card Number 157

Heary Bros. Lightning Protection
www.hearybros.com
Booth 1039
Heary Brothers Lightning Protection has been proudly serving the community with lightning protection needs for several generations. We provide customers with the choice of the traditional multi-point system, or the contemporary Early Streamer Emissions System. We pride ourselves on high-quality customer service. Inquire about design and specification services.
Circle Card Number 158

Hiller New England Fire Protection, Inc. "A Hiller Company"
www.hillerne.com
Booth 879
Furnish engineering, design, equipment, installation, testing, and inspections of all types of special hazard systems. Systems include Halon alternative clean agents; such as Inergen™, Novec 1230™, Sapphire™, FM-200™, FE-25™, Water Mist, and CO2. We furnish AFFF and high-expansion foam systems, fire alarm, Vesda™ smoke detection, linear heat, flame, and gas detection.
Circle Card Number 159

Hilti Inc.
www.hilti.com
Booth 515
With worldwide firestop expertise, Hilti provides a complete system of firestop products to meet specific project needs. Hilti also offers a support package that is unmatched in the passive firestop industry, including a highly trained direct sales force, fire protection specialists, and fire protection engineers.
Circle Card Number 160

Home Fire Sprinkler Coalition
www.HomeFireSprinkler.org
Booth 384
HFSC has free information about home fire sprinkler systems and how they protect people and property.
Circle Card Number 161

Honeywell Power Products
www.honeywellpower.com
Booth 725
Designed specifically to power video cameras, heaters, blowers and other video accessories, HPP's new series of rack-mounted power supplies fit in a standard 19-inch rack, requiring only two units of rack space. With more than 14 rack mount supplies in this series, a wide range of power options are now available.
Circle Card Number 162

HRS Systems, Inc.
www.hrssystems.com
Booth 511
HRS Systems, Inc. presents HASS® for hydraulic analysis of sprinkler systems, HASS-Estimator for cost estimating, HASS HOUSE® for residential sprinkler analysis, and COOSA® for CO2 system analysis. See www.hrssystems.com for detailed descriptions. All are Windows based and available in both English and metric units. HASS is available in metric units with Spanish text.
Circle Card Number 163

Hubbell Industrial Controls
www.hubbell-icd.com
Booth 679
Manufacturer of electric fire pump controllers, diesel fire pump controllers, and automatic transfer switches. Pressure switches for compressors on dry sprinkler systems.
Circle Card Number 164

Hydro Flow Products, Inc.
www.HoseMonster.com
Booth 603
The Hose Monster® and the new Pitotless Nozzle™. Fire pump testing, rooftop standpipe testing and hydrant fire flow testing solutions; no more downtime replacing damaged pitots. FM Approved. Safe,

accurate, and professional testing.
Circle Card Number 165

Idesco Corporation
www.idesco.com
Booth 1257
Laminated safety tags and signs; safety lockout devices; laminating equipment and supplies; security systems integration - photo ID systems and supplies; visitor management systems; access control software and hardware systems, proximity, biometrics, turnstiles; closed circuit television - video analytics, DVRs.
Circle Card Number 166

InstantEvac
www.instantevac.com
Booth 1208
InstantEvac: Creating professional evacuation maps that include Safety Equipment, Evacuation Routes and Instructions all customized for your facility. ChemiWise: ChemiWise is a scalable chemical inventory management solution designed from the end-users perspective. FireWise: FireWise is a plug-in for AutoCAD® 2000 and above, aids in the creation of your evacuation maps.
Circle Card Number 167

Intertek
www.intertek-etlsemko.com
Booth 1157
Intertek is accredited by OSHA (NRTL), the SCC and CSFM to test and certify products for safety and performance requirements. We test to NFPA, ASTM, UL, ANSI, and CSA standards. Our ETL-listed mark is recognized and accepted by fire marshals and AHJs across North America.
Circle Card Number 178

Keltron Corporation
www.keltroncorp.com
Booth 857
Keltron develops and manufactures universally compatible, UL-listed life safety event management systems and components for campus, industrial, commercial, government, military, and municipal environments. Solutions include Ethernet signaling systems, active network radio systems, distributed multiplex systems, digital alarm communicator receivers, direct wire, fiber and coded fire alarm systems, alarm annunciators, and mini-printers.
Circle Card Number 168

Kidde Fire Systems
www.kiddefiresystems.com
Booth 75
Kidde Fire Systems is the leading provider of total systems solutions. From early detection of fire to control and suppression, Kidde Fire Systems has the solution for your application, be it a paint spray

booth, commercial kitchen, marine engine room, computer room, or heavy-duty mining vehicle.
Circle Card Number 169

Knox Company
www.knoxbox.com
Booth 1151
The Knox FDC Protection Program provides fire department control over FDC equipment and long-term FDC protection against vandalism. Locking Knox FDC Plugs prevent foreign matter from entering sprinkler systems and are referenced in the 2006 International Fire and Building Codes. Knox FDC Plugs are quickly removed with a Knox Key-wrench.
Circle Card Number 170

Korea Fire Equipment Inspection Corporation
www.kfi.or.kr
Booth 1003
Korea Fire Equipment Inspection Corporation(KFI Corp.) is a national agency, which inspects every fire protection equipment produced in Korea.
Circle Card Number 171

Lewellyn Technology
www.lewellyn.com
Booth 1031
Lewellyn provides Electrical Safety in the Workplace offering Arc Flash Analysis, Consulting, Training, and Safety Policy Review and Development, along with other many compliance programs. Also offering Practical Maintenance Training Programs including Electrical, Automation, HVAC, Mechanical, Fluid Power, and much more.
Circle Card Number 172

Liberty Mutual Property
www.LibertyMutualProperty.com
Booth 1262
Liberty Mutual Property provides commercial property insurance programs, through brokers and its direct sales force, which include consultative loss prevention and claims services for companies large and small, with special emphasis on mid-sized companies. Liberty Mutual Property is a property expert for Liberty Mutual Group.
Circle Card Number 173

Life Safety Services
www.lifesafetyservices.com
Booth 1018
Fire and smoke damper inspections - Nationwide service.
Circle Card Number 174

Light Engineered Displays, Inc.
www.ledinc.com
Booth 823
LED manufactures a complete line of UL Listed Annunciators, Smoke Control and Water Leak Detection Panels. New to the product line is a visual Mass Notification System that is networkable using LED technology for messaging.
Circle Card Number 175

Lightning Protection Institute
www.lightning.org
Booth 1229
The Lightning Protection Institute is a nationwide not-for-profit organization founded in 1955 to promote lightning protection education, awareness, and safety. LPI members are dedicated to ensuring that today's lightning protection systems provide the best possible quality in both materials and installation practices for maximum safety.
Circle Card Number 176

LPCB
www.RedBookLive.com
Booth 810
LPCB offers approvals of fire products, systems and installers to National, European, and Loss Prevention Standards. The LPCB mark is accepted in over 45 countries. LPCB is a notified body for a number of European directives including construction products (CE marking), marine equipment, pressure equipment and transportable pressure equipment.
Circle Card Number 177

MEPCAD, Inc.
www.mepcad.com
Both 1175
MEPCAD, Inc. is the world leader in state-of-the-art software for the fire industry. AutoSPRINK VR has revolutionized the way sprinkler designers create drawings with instantaneous calculations and material lists and estimates. AlarmCAD is the productivity equivalent for the alarm and security industry. See what MEPCAD's software can do for YOUR bottom line.
Circle Card Number 180

Marioff, Inc.
www.marioff.com
Booth 475
HI-FOG is a high-pressure water mist fire protection technology that has been demonstrated to be highly effective against flammable liquid fires as well as light and ordinary hazard occupancies. HI-FOG has been recognized and approved by national and international approval authorities.
Circle Card Number 181

Master Control Systems, Inc.
www.mastercontrols.com
Booth 220
Master, the innovator of the world's 1st Variable Speed Electric Fire Pump Controller, offers NFPA 20, UL-listed, and FM-approved fire pump controllers in all sizes and types. We offer electric controllers from 5-400 hp at 200-600 volts and from 20-1900 hp at 2300-7200 volts. We also offer diesel fire pump controllers and accessory items. Five-year warranties are standard on our EC-series controllers and paperless pressure and alarm recorders.
Circle Card Number 182

Maxi-Signal Products Co.
www.maxi-signal.com
Booth 509
Distributor of industrial signals, lighting, and safety equipment, including UL-listed hazardous area strobe lighting and heavy-duty UL-listed explosion proof alarms.
Circle Card Number 183

Micropack Detection (Americas)
www.micropackamericas.com
Booth 939
Micropack introduces the new FDS-301 CCTV Visual Flame Detector. After 10 years of pioneering visual imaging based flame detection, the FDS-301 is our 3rd generation detector. Offering continuous color surveillance, increased sensitivity and on board video capture, the FDS-301 takes flame detection to the next level.
Circle Card Number 184

MIJA Inc.
www.mija.com
Booth 531
The future of fire extinguishers is here now. Electronically Monitored Fire Extinguishers enhances safety, reduces tampering & liability, improves inventory control and is easy to install. EN-Gauge is a UL listed and code approved alternative to required monthly inspections. Simply put, 24/7 surveillance is better than once every 30 days.
Circle Card Number 185

Mircom
www.mircom.com
Booth 831
Mircom manufactures and markets a full line of high quality fire control and communication products dedicated to the life safety and telephone access markets. Mircom is committed to providing high quality, cost-effective and innovative products that meet the demands of a growing marketplace.
Circle Card Number 186

Modeltech International
www.modeltech.com
Booth 1111
Sparky's® Hazard House® program

was developed with public educators to teach fire & injury prevention to all ages. Combined with the Midas Touch Display, colorful handouts and personalized web site, your program will be unique and your safety presentations more striking and memorable.
Circle Card Number 187

Net Safety Monitoring Inc.
www.net-safety.com
Booth 678
Net Safety Monitoring Inc. (NSM) is a world leader in the design, manufacturing, and marketing of industrial monitors and detectors (toxic gas, fire, and explosion-proof general security). Our state-of-the-art, ISO certified R&D lab and manufacturing facility ensures engineering of the highest quality that is certified to the strictest global standards for safety and performance. NSM's products constantly surpass the stringent demands imposed by high-risk hazardous applications while consistently fitting into the budget of the most cost-critical installations.
Circle Card Number 188

NGC Testing Services
www.ngctestingservices.com
Booth 1113
Over 40 years of providing fast, cost effective evaluations of materials, products and systems for fire endurance & flame spread from the full developmental stage through the certification process. Accredited lab with full-scale floor-ceiling and partition fire test capabilities. Acoustical testing also available.
Circle Card Number 179

No-Burn, Inc.
www.noburn.com
Booth 1228
NO-BURN® PLUS is an intumescent fire reactant that when introduced to heat or flame, foams up, providing a protective char barrier. NO-BURN® PLUS reduces the production of toxic smoke by up to 80 percent. Our Products have a Class A rating, which gives the structure the best possible protection against fire.
Circle Card Number 221

NOTIFIER
www.notifier.com
Booth 640
For over 50 years, NOTIFIER has been a world-leading manufacturer of commercial fire alarm systems and technology. Today, NOTIFIER continues to develop cutting-edge fire detection products that enable a safer, faster, and more intelligent response to fire and life safety emergencies. NOTIFIER – Leaders in Life. Safety. Technology.
Circle Card Number 222

OCV Control Valves
www.controlvalves.com
Booth 614
OCV Control Valves has 50 years of experience manufacturing valves for fire protection systems. We produce valves for pressure reducing, pump suction, pressure relief, surge control and several other applications. Many models are UL-listed and FM-approved. Give us a call today to help with your unique application. Global performance. Personal touch.
Circle Card Number 189

OFI, Inc.
www.safeplug.com
Booth 1235
SafePlug Model 1200 and Model 1300 smart electrical outlets prevent fires, shocks, and appliance damage. Now SafePlug outlets detect more fire-causing faults including bad wire junctions, floating neutral, and even overloaded appliances. SafePlug stops the fire before it starts. See a demonstration and win an electrical tester at booth 1235.
Circle Card Number 190

Oklahoma State University
Booth 786
Bachelor of Science Degree in Fire Protection and Safety Technology; seminars, short courses and customized training in a broad range of fire and safety topics. Fire Protection certificate program. Research

and consulting services.
Circle Card Number 191

Orr Protection Systems
www.orrprotection.com
Booth 1043
Since 1971, Orr Protection Systems has designed, installed and serviced fire alarm, suppression and explosion protection systems. Building on our skills and reputation, Orr has emerged as the expert in specials hazards mission critical fire protection. We custom design every system, ensuring maximum protection of people, property and business processes.
Circle Card Number 192

Peerless Pump Company
www.peerlesspump.com
Booth 569
Since 1923, Peerless Pump has provided industries with the highest quality pumps, packaged pumping systems, parts and service. As a recognized leader in pump design, performance and innovation, Peerless serves customers throughout the world. Our package system business provides the most sophisticated engineered-to-order turnkey pumping systems available in the world today.
Circle Card Number 194

Patterson Pump Company
www.pattersonpumps.com
Booth 267
Patterson is the world's top supplier of UL/FM stationary fire pumps and accessories. Vertical In-Line, HSC, End Suction, Vertical Turbine, and Pre-Pac Systems from 50 - 5000 GPM. Serving the world with offices in Thailand, Greece, and manufacturing in Ireland.
Circle Card Number 193

Pioneering Technology Inc.
www.safetelement.com
Booth 486
Safe-T-element™ is engineered to help prevent stovetop cooking fires before they start. According to NFPA, cooking is the top cause of household fires and apartment fires occur 40 percent more than the national average. Safe-T-element™ has a record of accomplishment of success helping prevent cooking fires in housing authorities, senior's facilities, colleges and other high-risk multi-residential facilities throughout North America. Safe-T-element™ recently received the US Home Safety Council's Award for

EXHIBITOR SHOWCASE

Product Innovation in Consumer Safety and is listed in the NFPA Journal Buyer's Guide.
Circle Card Number 195

Post Glover LifeLink
www.postgloverlifelink.com
Booth 1117
Manufacturers of isolated power systems, power columns, patient service consoles, digital clock timers, line isolation transformers, accessories and versa-duct – an anodized aluminum surface mounted raceway system and power poles.
Circle Card Number 196

Potter Electric Signal Company
www.pottersignal.com
Booth 315
Established in 1898, Potter Electric Signal Company has earned a reputation worldwide as an elite provider of goods and services. Potter produces a wide array of products including fire sprinkler monitoring systems, electronic fire systems, and vault and safe security systems.
Circle Card Number 197

PowerFlare
www.powerflare.com
Booth 1223
The rugged, flameless PowerFlare® PF200 Electronic LED Safety Light, invented by a police officer, is an extremely bright, compact, waterproof, intrinsically safe device that floats and can be used for SAR operations, confined space rescue, personnel identification, helicopter LZs, traffic control, egress markers, or part of a standard RIT kit.
Circle Card Number 198

Quest Technologies, Inc.
www.questtechnologies.com
Booth 708
Quest Technologies is a design, manufacturing and marketing company with distribution in over 50 countries. Quest Technologies has a strong reputation for instrumentation and software systems that monitor and evaluate Occupational and environmental health and safety hazards. These systems include speech intelligibility, noise, vibration, heat stress, indoor air quality and toxic/combustible gases.
Circle Card Number 199

REHAU Incorporated
www.rehau.com
Booth 482
FIREPEX® RESIDENTIAL FIRE SPRINKLER SYSTEMS combine the benefit of a PEXa pipe based system with the traditional fire sprinkler installation techniques. REHAU Reduces installation costs while providing safety and reliability for homeowners.
Circle Card Number 200

Retrotec Inc.
www.retrotec.com
Booth 374
Retrotec is the world's leading manufacturer of door fan test equipment used to conduct Clean Agent Enclosure Integrity Test for NFPA 2001 Annex C & ISO 14520 Annex E. Our software, systems, & training support all clean agent gases: FM 200, Novec 1230, Inergen, CO2, Argon, Argonite, Halotron, FE13, etc.
Circle Card Number 201

Rite-Craft Ind. Corp.
www.rite-craft.com.tw
Booth 488
Industrial safety equipments, personal protection equipments (masks, safety glasses, safety goggles, helmets), medical devices, medical disposable, ISO Room, ISO Chamber, Firefighting suits.
Circle Card Number 202

Rolf Jensen & Associates, Inc.
www.rjainc.com
Booth 963
Rolf Jensen & Associates, Inc. (RJA) is a leading fire protection-consulting firm providing a range of professional services involving life safety, fire protection, security, and mass notification on commercial, institutional, and industrial projects for clients worldwide. RJA is headquartered in Chicago with offices located in 16 major U.S. cities, Macau, and Shanghai, China.
Circle Card Number 203

Rotarex Inc.
www.rotarex.com
Booth 1059
Valves and components for fire suppression systems and fixed installations. Electronic digital measuring systems for CO2 contents control.
Circle Card Number 204

SAFE Fire Detection, Inc.
www.safefiredetection.com
Booth 951
SAFE Fire Detection is now your single source for four great addressable products, Early Warning Air Sampling Fire Detectors, Linear Heat Detection, Linear Cold Detection, and Linear Leak Detection. All may be used with any approved panel and do not require special expensive proprietary panels.
Circle Card Number 272

Safety Technology International
www.sti-usa.com
Booth 557
STI manufactures multipurpose push buttons, protective covers and alarms to help prevent theft and vandalism to: fire pull stations, smoke detectors, strobe/horns, biometrics, keypads, AED's, exit signs, emergency lights, thermostat controls, motion detectors, CCTV cameras, clocks and bells. Alarms to protect fire extinguishers from theft, alarms for exit/entry doors and a multipurpose combination alarm/strobe.
Circle Card Number 273

SDi
www.sdifire.com
Booth 237
SDi is a world leader in professional test and service equipment for fire detection systems and supplies the brands of SOLO, TRUTEST, and CANNED SMOKE - universal in their design and all market leaders in their detector testing and sensitivity fields. By choosing from SDi's prod-

uct range, you get quality, reliability and value for money; paramount to ROI and meeting today's standards.
Circle Card Number 205

Self-Powered Lighting
www.self-powered.com
Booth 1123
Full line of energy-efficient emergency lighting and exit signs; utilizing self-luminous, LED, electrical, and photoluminescent technologies in our product line.
Circle Card Number 206

SimplexGrinnell
www.simplexgrinnell.com
Booth 331
SimplexGrinnell offers a comprehensive array of fire alarm, fire sprinkler, fire suppression, security, and communications systems and services. With two million customers, 150 local offices, and over 200 years of experience in the fire business, SimplexGrinnell is the leader in fire and life safety.
www.simplexgrinnell.com.
Circle Card Number 208

Silent Knight
www.silentknight.com
Booth 551
Silent Knight announces its updated addressable IFP Series of products, including voice models. The products conform to the new standards mandated by UL and offer enhanced features and benefits. The series now up/downloads five times faster due to data compression software upgrades, and supports synch for System Sensor A/V devices.
Circle Card Number 207

Smith-Cooper International
www.smithcooper.com
Booth 205
Smith-Cooper International is a master distributor of SCI brand pipefittings including Ductile Iron Threaded, Cast Iron Threaded, Cooplet Welded Outlets, Malleable Iron Threaded, Steel Nipples and introducing Cooplok Grooved Couplings and Fittings.
Circle Card Number 209

Spears Manufacturing Company
www.spearsmfg.com
Booth 423
Spears is a leading manufacturer of CPVC fire sprinkler pipe, fittings,

EXHIBITOR SHOWCASE

and sprinkler head adapters, under the FlameGuard brand. Spears proprietary stainless steel reinforced CPVC head adapters greatly increase system integrity.
Circle Card Number 210

Spectrex Inc.
www.spectrex-inc.com
Booth 869
SharpEye Mini Series optical flame detector 20/20ML (UV/IR) provides reliable, rapid detection (50msec) at 30 percent less cost than conventional EX proof; sees a 1x1 ft fire up to 50 ft (100° field of view); and has rugged SS, IP65 design for use indoors/outdoors in high-risk situations. The 20/20MI (IR3) sees a 1x1 ft fire up to 150 ft. Outputs include relay contacts, 4-20mA, RS485. Full 3-year warranty.
Circle Card Number 212

Specified Technologies, Inc.
www.stifirestop.com
Booth 476
Specified Technologies Inc. (STI), a leading firestopping manufacturer offers the industry's most complete line of UL Classified systems. STI's SpecSeal® product line is based on a unique "two-stage" intumescent technology. STI specializes in difficult applications, not only offering a broad-based product line, but solutions, too.
Circle Card Number 211

SPP Pumps, Inc.
www.spppumps.com
Booth 1248
Manufacturer of UL Listed and FM Approved fire pump sets. Includes the availability of horizontal split case, end suction, vertical turbine and inline fire pumps. Listed fire pump range from 100 GPM to 5000 GPM in both 50 and 60 cycle offer-

Circle 016 on card or visit www.nfpa.org/product-info-journal

Circle 026 on card or visit www.nfpa.org/product-info-journal

ings. Most pumps are available driven by either an electric motor or diesel engine. Special material construction available in stainless steel, bronze and Ni-resist. Specialize in offshore, engineered and explosion proof fire protection packaged systems as well as standard fire pump packages for use in hospitals, schools, industrial plants and other commercial applications.
Circle Card Number 213

Stephenson Gobin LTD
www.stephensongobin.com
Booth 785
GeoFire present range of multi-voltage fire door retaining magnets. Conventional wired systems plus new wire free, radio controlled technology suitable for all public buildings including hospitals, airports, schools. Quick and simple to install.
Circle Card Number 214

System Sensor
www.systemsensor.com
Booth 631
System Sensor was founded in 1984 and today is the largest manufacturer of fire detection and notification appliances in the world. Over 1,900 associates collaborate worldwide to build quality products within conventional detection, intelligent detection, audible and visible (AV) notification, heating, ventilation, air conditioning (HVAC) monitoring, and sprinkler systems monitoring.
Circle Card Number 215

Task Force Tips, Inc.
www.tft.com
Booth 309
Task Force Tips Inc leads the industry in the innovative design of high performance fire suppression nozzles, monitors, foam applicators, injection equipment, industrial fixed monitors, ldh hardware and accessories, remote control monitors. See us at Booth 309 to see what innovations TFT is bringing to the firefighting world. www.tft.com
Circle Card Number 216

Technosoft, Inc.
www.technosoftinc.com
Booth 1130
Inquest by Technosoft is designed to make proof of compliance with fire and safety regulations easy. Electronically record your fire and safety inspections and archive the reports to CD or your computer network. Easily retrieve, view, and print from the report archive with the user-friendly Inquest archive browser.
Circle Card Number 217

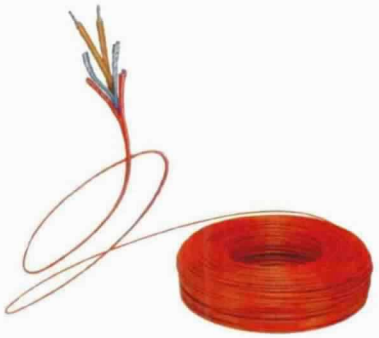
Texas Engineering Extension Service
www.teex.com/fire

Booth 209
TEEX Emergency Services Training Institute is a leader in the year-round training of more than 81,000 emergency response personnel every year. TEEX is known for its innovative, customized programs and its hands-on and on-site training. We offer courses in Firefighting, Rescue, EMS, HazMat, ARFF, Marine, LNG, and many more.
Circle Card Number 218

The Bilco Company
www.bilco.com
Booth 774
On display will be the Bilco Type FR-4 (which is a 2-hour fire rated floor door) and the Bilco Lumivent. The Lumivent provides all the security and value of an automatic fire vent with the added benefits of a skylight. The Lumivent is UL-listed and FM approved.
Circle Card Number 219

The Cad Zone, Inc.
www.cadzone.com
Booth 974
The Fire Zone is the easiest way to draw pre-fire plans, training diagrams, post-incident critique diagrams, and even courtroom-ready investigation diagrams. It contains thousands of predrawn symbols (NFPA and others).
Circle Card Number 220

The Metraflex Co.
www.metraflex.com
Booth 609
The fireloop expansion joint simplifies designing movement into your system. It takes less space. It installs faster and easier, and it effectively protects critical sprinkle piping systems for breaking during a seismic event. Revolutionary new "Never Trip" auxiliary drain valve, will never allow the system to accidentally trip.
Circle Card Number 223



The Protectowire Company Inc.
www.protectowire.com
Booth 769
The Protectowire Company, Inc. will be introducing a new linear heat detector, Model PHSC-135-XLT that provides increased flexibility for the System Designer. PHSC-135-XLT is the first digital type linear heat

the first digital type linear heat detector with an industry standard 135°F (57°C) alarm temperature, and has the ability to withstand ambient temperatures to –60°F (-51°C).
Circle Card Number 224

The Reliable Automatic Sprinkler Co., Inc.
Booth 583
www.reliablesprinkler.com
New sprinklers: For storage and EH, the control mode J168 (K-16.8) upright with solder element and the N252 EC (K-25.2) pendent with coverage up to 196 square feet. For light hazard: The DH56 HSW (wet or dry models), with coverages of 28′ x 8′ and 28′ x 10′ provides protection for long, narrow areas such as corridors, hallways, and decks.
Circle Card Number 225

The Signal Source
www.thesignalsource.com
Booth 789
Synchronized NEMA 4X, UL1971 strobe lights suitable for wet, hazardous and explosion proof locations. Amplified speakers/speakers for hazardous and wet environments. Explosion-proof & weatherproof pull stations. Complete mass notification communication systems for both military and industrial plants. Outdoor warning systems for power and chemical plants.
Circle Card Number 226

TOLCO, A Division of NIBCO Inc.
www.nibco.com
Booth 1127
TOLCO™, a division of NIBCO Inc., manufactures quality, UL, ULC, FMRC, NYC products including pipe hangers, supports, seismic bracing and TOL-Strut™ Channel. TOLCO has 40 years of experience in the residential and commercial fire protection markets. For more information on TOLCO's full line of fire protection products, go to www.tolco.com.
Circle Card Number 227

Tomco Fire Systems
www.tomcofiresystems.com
Booth 465
Tomco Fire Systems will be introducing our new product line of high and intermediate water mist fire protection systems in addition to our low pressure C02 Systems.
Circle Card Number 228

TRC–Technology Research Corporation
www.trci.net
Booth 216
TRC is recognized as a worldwide leader in electrical safety products that prevent electrocution, electrical fires, and protect against serious injury from electrical shock. TRC's Fire Shield® products are the world's first and only surge strips and cords that prevent cord fires, surges, and overloads.
Circle Card Number 229

Tyco Fire & Building Products
www.tyco-fire.com
Booth 351
Commercial, Residential and Industrial products will be on display, including valves, sprinkler heads, grooved piping products, SprinkCAD fire protection software, and special hazard equipment. Attendees can also find out more information on the latest in performance-based fire protection solutions such as Quell for cold/unheated storage areas and testing that has been done on sloped/beamed ceilings.
Circle Card Number 230

Underwriters Laboratories Inc.
www.ul.com
Booth 822
Underwriters Laboratories Inc. has the most comprehensive fire protection and security & signaling testing capabilities in the world. Our team of experts and state-of-the-art, specialized testing equipment and capabilities make UL the leading compliance testing and standard development organization. The UL Mark is widely accepted by AHJs, government, retailers, and consumers.

EXHIBITOR SHOWCASE

University of Maryland
www.oaee.umd.edu/grad/fire
Booth 1017
The Department of Fire Protection Engineering is the only ABET accredited program offering degrees in fire protection engineering. Our Web-based Master's in Fire Protection Engineering is designed for working engineers, the program features a curriculum rich in the latest scientific and technological principles and practices to advance your career.
Circle Card Number 232

University of Nevada, Reno Fire Science Academy
www.fireacademy.unr.edu
Booth 608
Recognized as one of the most comprehensive emergency response training programs and facilities in the world, the University of Nevada, Reno Fire Science Academy (FSA) in Carlin, Nevada, has been training and preparing organizations, businesses and government agencies in emergency response and incident management for more than 30 years.
Circle Card Number 233

USA Tank Storage Systems
www.usatanksales.com
Booth 782
USA Tank Storage Systems sells and erects bolted steel, shop welded, fiberglass tanks for liquid and dry applications. We also sell and install immersion tank heaters and insulation. USA Tank Storage Systems can turn key your projects.
Circle Card Number 234

Vibro-Meter, Inc.
www.vibro-meter.com
Booth 562
The Omniguard® family of flame detectors provides superior performance, flexibility and reliability. The family consists of the Model 660 UV, the Model 860 UV/IR and the new Model 760 IR5 multi-spectrum IR detectors. The 760 processes the information from five bandwidths of IR radiation in its Fire Event Analysis™ algorithm.
Circle Card Number 235

Viega
www.viega-na.com
Booth 266
Viega is a manufacturer of pipe and fittings for the plumbing, fire sprinkler and hydronic radiant heating industries. Viega produces the ProPress copper press fitting system for fire sprinkler applications and plumbing and gas service. ProPress is a fast, flameless, solder -free fitting that can be installed in a fraction of the time of solder type fittings.
Circle Card Number 236

Viking Group
www.vikingcorp.com
Booth 521
Visit the Viking booth to see the latest innovations in fire sprinkler technology. Viking's recent product innovations include the new Mirage® commercial concealed sprinkler, the enhanced ESFR Cold Storage System, and the leading Freedom® line of residential sprinklers. With 47 locations worldwide, we can serve your needs anywhere you need us.
Circle Card Number 237

Vivid Learning Systems
www.VividLearningSystems.com
Booth 283
Now offering "NFPA 70E Electrical Safety Work Practices and Standards" course. Visit www.70ETraining.com for a free demo. Vivid Learning Systems is a leading provider of online training performance solutions. From OSHA to Food Safety, Vivid offers one of the most comprehensive and diverse compliance training libraries on the market today.
Circle Card Number 238

WennSoft
www.wennsoft.com
Booth 218
WennSoft provides service management, job cost and equipment management solutions that improve efficiency, expedite reporting and create cost savings for customers. Each product provides unique business management benefits and integrates common business activities (dispatching, change orders, construction project management and asset management) into the Microsoft Dynamics™ – GP financial reporting package.
Circle Card Number 239

Westex Inc.
www.westexinc.com
Booth 1210
Westex Inc manufacturers INDURA®Ultra Soft® flame resistant fabrics that offer industry-leading balance of Protection, Comfort and Value, and offer excellent protection from Electrical Arc and Flash Fire.
Circle Card Number 240

Wet or Dry Tank Inspection
www.wetordryinspection.com
Booth 274
We provide the most cost-effective, safe, efficient method to meet NFPA 25 standards and comply with risk insurers guidelines. Our team of Engineers and NACE Inspectors evaluate your structures using a Remotely Operated Vehicle designed and built by us specifically for tank evaluations combined with comprehensive reports and accurate recommendations.
Circle Card Number 241

Wilkins, a Zurn Company
www.zurn.com
Booth 605
Wilkins is the best choice for valves for fire suppression systems. We offer a complete line of American made factory set, (easy) field adjustable, and master zone control valves. Available in 1 ?, 6' sizes, in angle and inline patterns and threaded, flanged and grooved connections.
Circle Card Number 242

WireGuard Industries
www.thewireguard.com
Booth 884

EXHIBITOR SHOWCASE

WireGuard is a patented, reusable 18-gauge steel insert that protects wires during rough-in and prevents cuts and nicks from routers, and prevents paint and drywall mud from compromising your wire integrity. Recommended by inspectors and available nationwide. Online at www.thewireguard.com, 800-639-3919. Proudly made in the U.S.A.
Circle Card Number 243

Worcester Polytechnic Institute
www.online.wpi.edu
Booth 1105
WPI is a leader in fire protection engineering education. We offer campus programs for full time students and online programs for practicing engineers furthering their careers in the field. Call 508-831-6789 to speak with a college advisor.
Circle Card Number 244

Workrite Uniform Company
www.workrite.com
Booth 607
Workrite Uniform Company is the leading manufacturer of flame resistant work apparel. Workrite manufacturers FR clothing from more than 15 different types of FR fabrics, giving us a complete offering to meet a wide ranged of thermal hazards.
Circle Card Number 245

Xella AAC Texas, Inc.
www.xellamexicana.com
Booth 1138
Xella Texas, Inc. manufactures and distributes Hebel-AAC products (Autoclaved Aerated Concrete). AAC is a result of a German technology made out of Portland cement, silica sand, lime, water and expansion agent that creates a lightweight concrete that offers a 4 hr fire rating, excellent thermal and acoustic properties, energy savings and much more.
Circle Card Number 246

Xerxes Corporation
www.xerxescorp.com
Booth 800
Xerxes manufactures fiberglass underground tanks in sizes ranging from 600-50,000 gallons for storage of water for fire-protection. Tanks constructed of rustproof fiberglass, providing long-term, leak-proof storage. Four strategically located manufacturing facilities allow Xerxes to provide cost-effective delivery of high-quality service to locations throughout U.S.
Circle Card Number 247

Zurich Insurance Co.
www.zurichservices.com
Booth 1260
Risk engineering consultation
Circle Card Number 248

COALITION for FIRE-SAFE CIGARETTES

The time is now.™

Each year lives are lost, people injured and property destroyed by cigarette fires. Yet there is a proven, practical, and effective way to reduce the risk of cigarette-ignited fires. Fire-safe cigarettes offer our best opportunity for another big leap forward in fire protection in this country. The technology for fire-safe cigarettes has existed for many years. However, tobacco companies have not made this safer alternative widely available.

The Coalition for Fire-Safe Cigarettes was formed because the time for fire-safe cigarettes is now.

www.firesafecigarettes.org

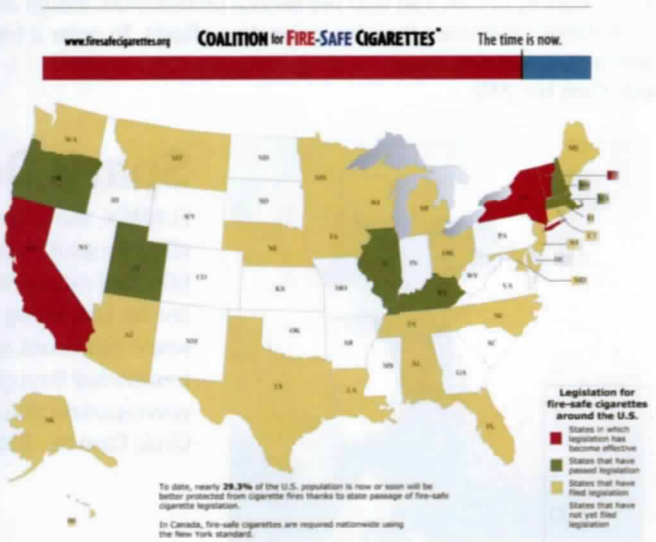
join today

You Can Help Make Fire-Safe Cigarettes A Reality

Log onto **www.firesafecigarettes.org** and learn more about the issue and our work.

Contact your local legislators and urge passage of fire-safe cigarette legislation in your state.

Join the Coalition for Fire-Safe Cigarettes.



States throughout the country are providing their citizens with an added level of fire protection by enacting fire-safe cigarette legislation. More than 20 states are considering bills that would require this technology which makes cigarettes less likely to cause fires if left unattended. It won't be long before every state in the country is saving lives and preventing losses associated with cigarette-related fires.

Come hear more about this life-saving initiative and learn what is happening in your state. Join **NFPA President Jim Shannon** for an update on the Coalition for Fire-Safe Cigarettes in the **NFPA Booth at the World Safety Conference & Exposition Tuesday June 5th at 11:00 am.**

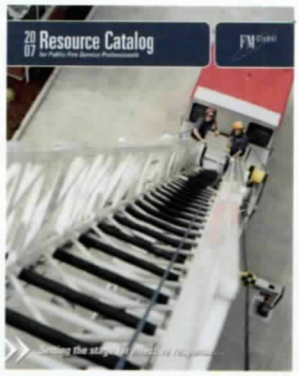
NFPA

The Coalition for Fire-Safe Cigarettes campaign is coordinated by NFPA.

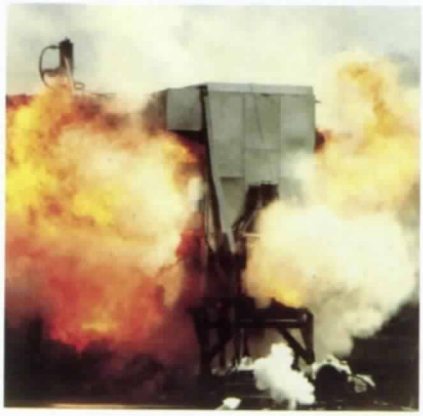
www.firesafecigarettes.org

what's hot

Resource Catalog



FM Global has just released its 2007 Resource Catalog for Public Fire Service Professionals containing a host of complimentary educational material that can be ordered exclusively from FM Global at no cost to you. To bolster firefighters' awareness about commercial and industrial pre-fire planning, sprinkler systems, arson and related fire prevention and control topics, the updated, full-color catalog contains a range of property loss prevention brochures, checklists, pocket guides, posters and seminars available just for the asking. These products, in turn, can help fire service professionals design and implement programs and practices to enhance their fire prevention efforts. To order a free printed catalog, visit www.fmglobalcatalog.com.
Circle Card No. 249

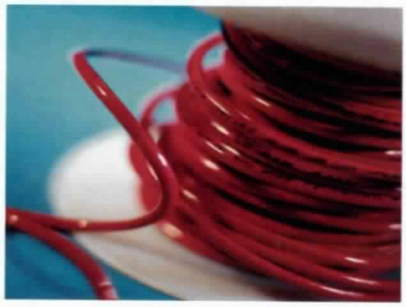


Spark Detection

FLAMEX, the original Spark Detection and Extinguishing System, is a cost effective solution for the prevention of baghouse fires and explosions. It identifies and extinguishes a spark in a pneumatic duct within a fraction of a second, preventing the spark from entering filtration units and storage bins where explosions and fires can occur. Infrared detectors sense sparks being transported through ductwork to a dust collector. For more information, visit www.sparkdection.com.
Circle Card No. 250

Audible Exit Sign

System Sensor unveiled its innovative and improved ExitPoint™ directional sounder, which now includes voice messaging. It is the newest concept in fire safety – the audible exit sign. ExitPoint is now capable of playing a recorded alert message, which instructs the occupants of the action to take as they approach an ExitPoint device, including "stairs up," "stairs down," "area of refuge" and "exit here." ExitPoint has a total of 15 single and combination language choices, including English, English/Spanish, and English/French. For more information, visit systemsensor.com.
Circle Card No. 251



Heat Detection

ThermoCable™ is a new Addressable Linear Heat Detection (LHD) wire from SAFE Fire Detection, who is once again revolutionizing the fire detection market with innovative new products. ThermoCable features lower resistance for better performance and is durable enough for harsh industrial markets. ThermoCable can also be used with any approved addressable or conventional fire alarm panel. ThermoCable is available with PVC, nylon, and polypropylene outer coatings. For more information, visit www.safefiredetection.com
Circle Card No. 270

Control System

The new GE Vigilant V-Series line of life safety control systems offer the speed of high-end intelligent processing in configurations that deliver an uncomplicated solution for small to mid-sized applications. V-Series represents life safety intelligence geared expressly for smaller applications that used to be the exclusive domain of conventional systems. With V-Series, you now have access to technology that a short time ago was beyond the reach of most small building budgets.
For more information, visit www.gevigilant.com.
Circle Card No. 252

Pre-Engineered System

Amerex Corporation unveils the exclusive Amerex CPS, which stands for Clean Agent Pre-Engineered System. The Amerex CPS is a carefully developed fire suppression system designed to help companies maintain business continuity and protect irreplaceable, critical assets from the risks of fire without putting people or the environment at risk. The agent used in this unique system is the industry leading FM-200® Waterless Fire Protection, an environmentally friendly clean agent manufactured by Great Lakes Chemical Corporation™, a Chemtura Company. For more information, visit www.amerex-fire.com.
Circle Card No. 253

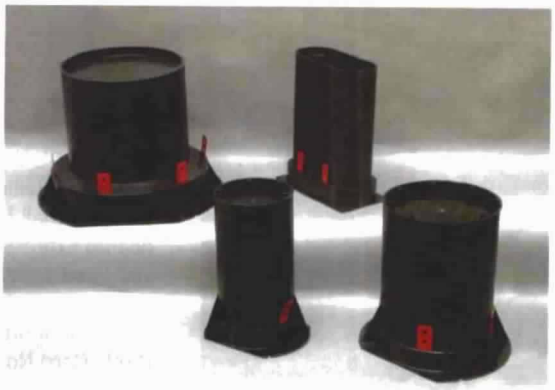
Lighting

Prescolite's new FireTight® series of fire-resistant recessed downlights is patented, tested, and UL classified for use in the most common one-hour and two-hour fire rated ceiling assemblies. FireTight is a simpler, less expensive alternative to costly and ineffective field-fabricated downlight enclosures for fire rated applications. Offered in 6", 5", and 4" apertures for compact fluorescent, incandescent, and low voltage sources, FireTight is ideal for multi-story commercial and residential installations such as apartment buildings, hospitality, and assisted living facilities. Visit www.prescolite.com for more details..
Circle Card No. 265

Commercial Fire Alarm

NOTIFIER will exhibit the ONYX FIRSTVISION™, the ONYXWorks™, and the ONYX® Digital Voice Command (DVC) at the upcoming NFPA World Safety Conference & Exposition, from June 3-7 in Boston. The products are part of NOTIFIER's ONYX™ Series, designed with the most advanced network, panel and peripheral devices available to create integrated solutions for any fire safety application. The ONYX FIRSTVISION is a revolutionary wayfinding navigational tool for firefighters and other emergency responders. ONYXWorks is the only PC-based graphical workstation with the ability to integrate NOTIFIER and competitive fire alarm systems, security, card access, and CCTV into a single point of control.
Circle Card No. 255

Firestop Device

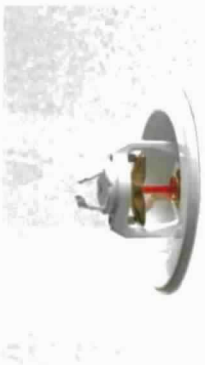


RectorSeal® Cast-In-Place Devices are UL-tested, pre-firestopped, sleeves designed to accommodate many different sizes and types of penetrations. The new oval design allows you to insert hot water, cold water, drain pipes or other combinations through one opening or fill it with mixed multiples. Attach these devices to metal decks or wood forms before pouring concrete and they provide large openings with internal guides for easy pipe installations. Eliminate core drilling and save time and money. See the complete line of Metacaulk® Cast-In-Place Firestop Devices at www.rectorseal.com.
Circle Card No. 256

Suppression System

Buckeye Fire Equipment introduces the next generation of UL-300 Restaurant Cooking Area Fire Suppression Systems, the Buckeye Kitchen Mister Suppression System. By combining the fire fighting ability of misting technology, common sense features, and time saving patented innovations, the Kitchen Mister makes all other systems seem complicated and outdated. Consider these features: color coded nozzles for easy identification; four cylinders designated by flow point capacity, not agent fill; a releasing module with a viewing window so you can be sure the cartridge is installed; the elimination of conduit and brackets in the plenum, and Buckeye Shielded Cable eliminates all conduit and corner pulleys from the system. For more information, visit www.buckeyef.com.
Circle Card No. 257

Residential Sprinkler



The Viking Corporation announces that the UL listing for its VK453 Microtech™ residential sidewall sprinkler has been expanded to include a 20 x 20 ft (6,1 x 6,1 m) room size. In addition to providing the lowest flows for any listed coverage area, Viking is the only manufacturer to offer residential sidewall sprinklers with UL-listed coverage areas of 16 x 22 ft (4,9 x 6,7 m), 18 x 20 ft (5,5 x 6,1 m), and 20 x 20 ft (6,1 x 6,1 m). This new listing is just the latest addition to Viking's leading Freedom® line of residential fire protection products. The VK453 sidewall sprinkler is available in 155°F (68°C) and 175°F (79°C) temperature ratings and four standard finishes (white, brass, chrome, and black). For more information, visit www.vikinggroupinc.com.
Circle Card No. 258

Control Panels

Silent Knight will showcase its expanded IFP Series of products, including the IFP-50, IFP-100, IFP-1000 and VIP models in booth 551 at the NFPA *World Safety Conference & Exposition®*, June 3-7, 2007 at the Boston Convention & Exhibition Center. The upgraded products conform to the new standards mandated by UL, as well as offering enhanced features and benefits. The IFP Series product line supports synchronization of System Sensor A/V appliances and a USB port has been added to increase programming compatibility with laptop computers. The IFP-1000 has an increased power supply of six amps. For more information, visit www.farenhyt.com.
Circle Card No. 259

Cargo Valve

Hoover's Cargo Valve Liquitote® is designed for the onsite delivery and discharge of combustible and flammable materials from a transport vehicle. Meets requirements of DOT-SP12412–the "pump-off" special permit. Bottom discharge system includes the 3 required emergency shut-off valves. For more information, visit Hoover Materials Handling Group, Inc. at www.HooverSolutions.com.
Circle Card No. 269

Fire Suppression

The Guardian III system is a residential range top fire suppression system that protects against cooking fires.Cooking fires account for millions of dollars in damage annually. Twenty First Century International Fire Equipment is dedicated to manufacturing and distributing quality safety products that provide our customers assurance and peace of mind, while protecting lives and property from this devastation.
Circle Card No. 261

Duct Wrap

Thermal Ceramics Inc. announces FireMaster® FastWrap™ XL, a flexible, lightweight duct-wrap applied in two layers on grease ducts to give a 2-hour fire rating, and meeting IMC 2006 requirements for grease duct enclosures to pass the rigorous ASTM E2336 Fire Tests. UL Listing HNKT.G-18.
Circle Card No. 262

Flame Detectors

Spectrex Inc. has launched its unique Hydrogen Flame Detector 20/20SH to address the need of a wide range of industrial and commercial facilities that use hydrogen fuel cells, hydrogen gas generators and hydroxyfuels. Most flame detectors are designed for detection of hydrocarbon flames and are based on the fire's CO2 emission but cannot detect the hydrogen flames that emit in the water vapor (H2O) band and have no emission in the CO2 range.
Circle Card No. 263

Deluge Valve

OCV Control Valves manufactures a variety of control valves for fire protection systems. The Model 116FC is a pneumatically activated deluge valve that functions to remain closed by means of a pneumatic supply pressure to the pneumatic actuator. When the pump supply pressure is removed, the valve opens to admit water through the main line. The 116-FC series is easily maintained without removal from the line, stamped with a serial number for unproblematic customer service and part replacement and UL listed in certain sizes. For more information, visit www.controlvalves.com.
Circle Card No. 264

Backflow Preventers

Ames Fire & Waterworks' Series 20 Dual Check Backflow Preventers feature a low pressure drop, chloramines-resistant components for harsh water conditions, complete modularity for easy maintenance, limit stops to prevent thermal expansion damage, center & edge guides to ensure repeatable seating and no exposed screws or threads to eliminate corrosion. Series 20 includes the standard model for residential water meters, the L20 in-line testable dual check ideal for applications requiring a testable backflow preventer, the 20S UL Classified fire sprinkler dual check and the Cu20 lead free dual check. Models are available in sizes 1/2 to 1-1/4 in. and all models are ASSE approved. For more information, visit www.amesfirewater.com.
Circle Card No. 266

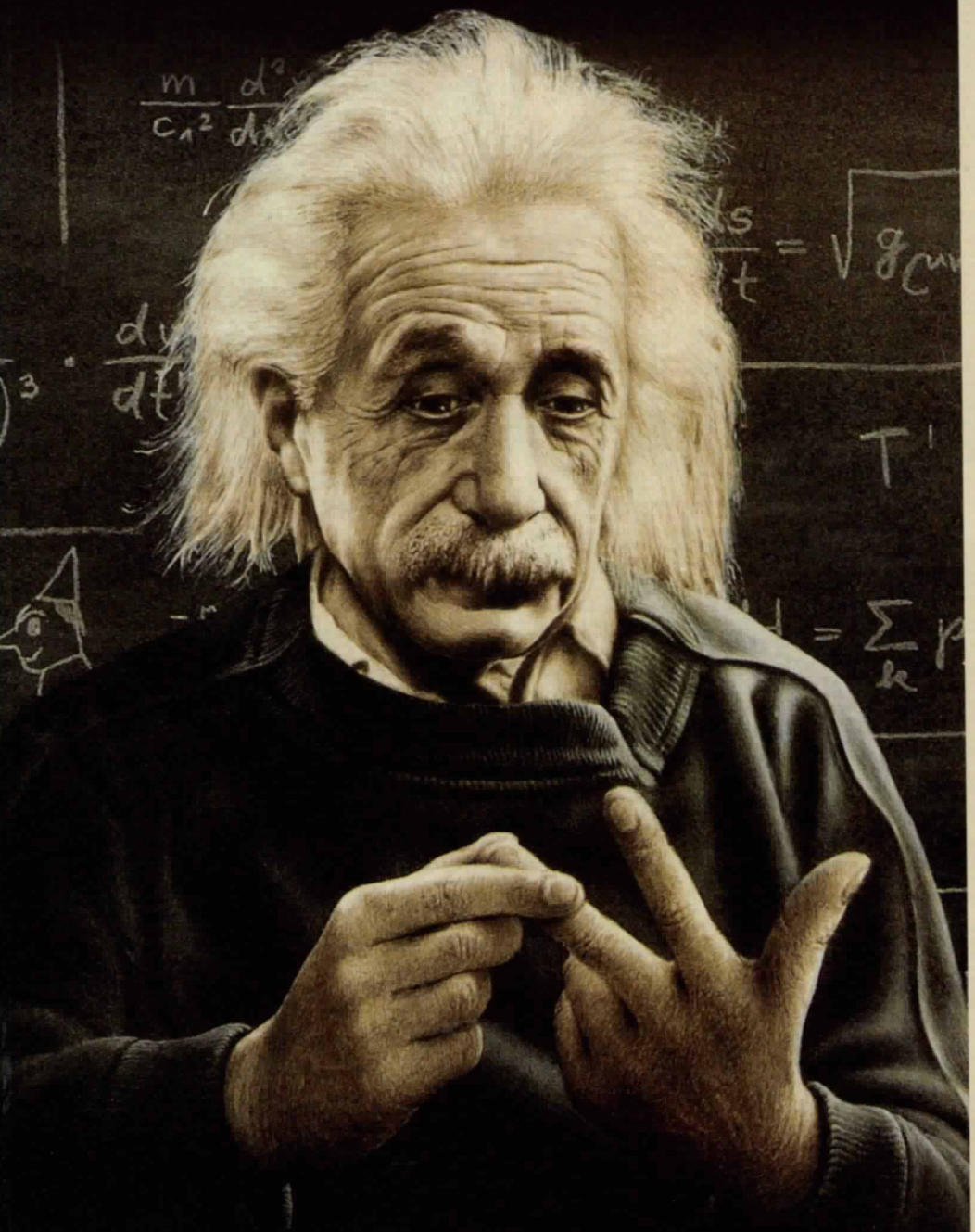
Sprinkler Software

HRS Systems, Inc. presents HASS® for hydraulic analysis of sprinkler systems, HASS-Estimator for cost estimating, HASS HOUSE® for residential sprinkler analysis, and COOSA® for CO2 system analysis. Windows - 95 and up, Units - English and metric (HASS, + metric with Spanish text). For more information, visit www.hrssystems.com.
Circle Card No. 271

Inspection Software

OnDemandInspections.com (ODI) is focused on the delivery of comprehensive, paperless software solutions to the world of fire and safety inspections. ODI is the only true Web-based OnDemand mobile inspection platform providing our clients instant access to their life safety inspection data. With the increasing demand for compliance, now is the time for Fire Officials to capitalize on our unparalleled mobile options for Laptops, Cell Phones, Tablets, and PDAs in conjunction with the dynamic reporting and fire code correlation engine. Take advantage of the instant online account creation to begin using ODI today at no cost. Visit us at www.OnDemandInspections.com.
Circle Card No. 267

You Have a Problem?



Are Halon decommissioning mandates causing you a problem? ***Then RemTec International is your solution.***

Many countries are now mandating that Halon users (producers, suppliers, maintenance and servicing engineers) decommission fire protection systems and extinguishers containing Halons. "Critical uses" are often the only exemption. Typical options available to end-users faced with the task of legally disposing of their unwanted Halons are limited and very costly.

RemTec offers a better solution, which is cost-effective and in accordance with the spirit of the Montreal Protocol. RemTec is the largest supplier to "critical users" in the world and we would like to qualify your unwanted Halon for these approved applications. Recycling of Halons is not only cost-effective when compared to destruction, but may also prevent future Halon production. ***It's the best environmental solution!***

Call RemTec today. Let our team of Halon experts assist with all of your disposal problems including unwanted HFC-227, refrigerants and other halocarbons. Remember, we also provide on-site recovery and destruction when and where you need it worldwide.

Call us at 1-419-867-8990. Toll Free in North America at 1-800-372-1301. In Europe call 00-800-850-11622. Or contact us at info@remtec.net.

RemTec International

1100 Haskins Road
Bowling Green, Ohio 43402 U.S.A.

We Are the Solution.

Circle 286 on card or visit www.nfpa.org/product-info-journal

SECTION FORUM

"Section Forum" has been developed as a service to NFPA members. The messages and responses posted are those of the authors and do not necessarily reflect the views of NFPA.

Be in the spotlight, share your expertise, and contribute to NFPA Journal's exclusive "Section Forum!" Your section membership is the key to reaching more than 80,000 safety colleagues! Convey your thoughts on NFPA codes and standards. Share insights on the latest trends and developments in your industry. Update your peers with the latest meeting and professional development offerings you've attended. Discuss your research. Provide us with a case study. The opportunities are boundless, but it starts with you. Simply email your submission to sectionforum@nfpa.org. Please include your name, section affiliation, and NFPA member number. You must be an NFPA section member to participate. Haven't yet enrolled in a section? Simply visit Member Sections at www.nfpa.org to sign up online. Section membership is free and included in your NFPA membership. Make the effort. Gain recognition. Set yourself apart.

Building Fire Safety Systems
Member Spotlight

Preventing Sprinkler System Failures

BY WILLIAM DUNCAN

We perform ultrasonic pipe testing at fire, HVAC, and plumbing systems, and over the past 10 years, we have seen a sharp spike in fire system failures. This work keeps me extremely busy nationwide, but occasionally, I take the time to write informative handouts on various subjects to our clients. At the World Safety Conference & Exposition® in Orlando last year, I co-presented a seminar on fire pipe corrosion, which enjoyed a very good response.

Recently, work at an assisted living/nursing home caused me great concern, not only because of the results we found—we are accustomed to finding fire piping in extremely deteriorated condition—but also because of the actions (or inactions) of the fire sprinkler contractor. For about 6 months, the contractor had responded to pinhole failures in the sprinkler system by cutting out and replacing small sections of the failed piping. He butted the new pipe up against the existing pipe, which was heavily rusted and clogged with deposits, some by at least 50 percent. It only took us one look inside those pipe to determine that the system would have never have worked if it had been called upon to do so.

We submitted our report, suggesting that no fire protection existed in parts of the facility, to a fire protection engineer, who developed plans for complete pipe replacement.

While we did not cite the contractor's actions in the written report, it was obvious that, had a fire occurred, some elderly residents could have died. If that had happened, I would have expected negligent homicide charges to have been filed against the contractor, who allowed such a serious and obvious threat to remain.

This not being the first time we found such conditions, I decided to write a two-page handout, *When Pipe Corrosion at a Fire Protection System Can Cost Lives*, based on the event that summarizes this generally hidden threat. My intent was not to cause alarm, but to expose to a larger audience a problem we see too often. I also wrote a handout on the general threats to fire protection piping a few years ago called *The True Threat of Corrosion to a Fire Sprinkler System.*

To see the complete text of both handouts, please visit www.nfpa.BFSS.

William Duncan is with CorrView International in England.

From the Members
Fire Service

Is It Time to Change Your Liquid Level Measurement System?

BY CHRISTOPHER LOAT

NFPA standards for maintaining and certifying many liquid fire suppression systems and FM 200 require the cylinders to be disconnected from the system manifold and weighed annually or bi-annually. However, this method becomes increasingly impractical as the size of the cylinders used in the various types of suppression systems increases—some now weigh more than 600 pounds (272 kilograms). It takes time and physical labor, and there is a real risk of damaging the system, leading to down time when the system is not providing the protection it is designed to.

There is an increasing need for new methods that meet or exceed existing safety standards and make it easier and safer to carry out the required safety inspections and certification of fire suppression systems. Fortunately, the existing standards allow the use of alternative technologies, providing the level of safety the standard prescribes is not lowered.

In the past, isotopes have been used as an alternative method for determining the liquid level of suppressant in a system's cylinders, but this method presents its own

set of problems. The regulations for storing and using radioactive isotopes are now more stringent, and the annual fees for maintaining and registering isotopes have increased significantly. The procedures now required for transporting and using the radioactive source make it much more difficult to use this method. And it has become increasingly difficult to dispose of radioactive material when it has reached the end of its useful life. In addition, operators face the risk of exposure to radiation if they fail to handle the material correctly.

Another method now being recognized by more and more companies as the way forward is ultrasonic liquid level measurement. Ultrasonic liquid level measurement is accurate to +/-0.06 inches (+/- 1.5 millimeters) and exceeds the current safety standards by removing the risk of damage to the suppression system while disconnecting and reconnecting the cylinders to the manifold of the system; ensuring that the suppression system is operational at all times; removing the risk of accidental discharge; eliminating the physical labor of carrying the bottles to and from the weighing scales; allowing operators to check the contents of the cylinders more frequently; and providing access to cylinders through an extension arm that can reach cylinders in banks three deep.

The use of ultrasonic liquid level measurement also makes commercial sense. An operator familiar with this method can verify the contents of a suppression system in 40 percent of the time that it takes to weigh the same cylinders.

There are annual certification programs for ultrasonic liquid level instruments for companies operating a quality assurance programs that require an annual certification of all equipment. Units sent for certification under these programs get a report listing all the components that have been checked and stating whether they meet the unit's factory specification. This annual certification can also be used as a marketing tool in bids for new contracts.

More information is available at www.coltraco.co.uk.

Christopher Loat is with Coltraco (North America) Company.

Dying For Property II

BY JOSEPH J. COFFEY

Recently, I have been reading articles in fire service trade publications about ways to prevent firefighters deaths. It appears to me that we are finally starting to address the problem with some force. The momentum must not stop.

I believe training and education is a start, but we also need to develop a national standard for fireground operations focused on preventing firefighter deaths. As NFPA Fire Service Section members, we should take the lead in establishing formal requirements that tell firefighters when and when not to enter a structure.

It is difficult to break with more than 300 years of firefighting tradition, but killing a firefighter in a building is not acceptable. We can replace property and items, but we can't resurrect a firefighter who died to save a building. As the next generation of firefighters and fire service leaders, we have to say enough is enough.

As I wrote in "Dying for Property" in the November/December 2006 issue of *NFPA Journal*®, I believe firefighters dying in buildings is an epidemic, and the problem continues in 2007. We need to fix this now, before any more firefighters die in the line of duty trying to save a building.

Joseph J. Coffey is a firefighter/EMT for the City of Waukesha Fire Department in Waukesha, Wisconsin.

INTERNATIONAL FIRE MARSHALS ASSOCIATION

Power of Ones

BY AZARANG (OZZIE) MIRKHAH, P.E., EFO, C.B.O.

On December 4, 2006, the IAFC issued a *Member Alert* notifying its membership about the hazards associated with lightweight composite

floors in residential occupan-cies, noting that "there have been several cases of firefighters falling through floors made of composite structural components and an even greater number of near-miss situations. This type of construction is being investigated as a contributing factor in a line-of-duty death.

"There is a proliferation of engineered floor systems in residential occupancies across the United States. Many newer residential occupancies incorporate lightweight, engineered wood, or composite structural components, including trusses, wooden I-beams, and lightweight flooring systems. In most cases, these systems are structurally sound and designed to support the appropriate loads under normal conditions; however, they are likely to fail very quickly under fire conditions.

"These components and systems are most often found in situations where applicable codes do not require any rated fire resistance between floor levels. They have much less inherent fire resistance than conventional wood joist floor systems and conventional wood decking. Remember—many codes do not require any fire resistance in residential floors! In the several cases of firefighters falling through floors, those floors had been exposed to fire from below for relatively short periods."

It is great that fire service organizations act so promptly to notify us about such hazards, but what is the next step? Just adding this new hazard to the very long list of other hazardous we must be concerned about when responding to a fire is not the solution. I believe we must take measures to modify our national building codes to address this concern.

Lightweight construction materials are extremely popular with builders, who consider them to be "better performing, more durable, and environmentally friendly" than traditional materials. Since builders will not willingly discontinue using lightweight trusses, this problem will not go away any time soon, so we might as well try to find a long-term solution that not only protects occupants, but also our own.

I believe that one such solution is the installation of residential fire sprinkler systems in all new homes to put out fires before these structural members are even exposed to them. Wouldn't that make a great deal of sense? Let builders use their lightweight trusses, but mandate that they install fire sprinklers in the buildings so that the trusses don't fail under adverse fire conditions.

Obviously, this solution will not have an impact on existing homes, but it will have a long-term impact on the 1.5 million new homes built around the country every year. If we don't address this problem now, the new homes of today will be where we will fight the fires of tomorrow and collect our future fire fatalities.

How do we go about changing the building codes to require residential fire sprinkler systems in all new homes? As with anything else in our democratic society, change will only come about through mass participation in the established process. To see any change at all, the fire service must participate with all their might in the code-development process.

There is no better way to describe the importance of participation than this inspiring piece delivered as part of a speech by Mr. Walter Williams at the 1947 President's Conference on Fire Prevention:

Sometimes I think we are inclined to think that, "Well, I as an individual cannot do very much." Let me give you just a grand example to show how wrong you can be in that belief. Three or four years ago, after the war had got well under way, the Boeing Aircraft Co. in Seattle was having a great deal of difficulty in recruiting employees to turn out its B-17s and B-29s, and so after having exhausted the orthodox methods of recruitment, it called upon the Army and the Seattle Chamber of Commerce to help solve the problem, and here is what they did.

They called together a huge mass meeting at the stadium of the University of Washington. That stadium ordinarily would hold perhaps 45,000 people. On this particular occasion, the outpouring of the public was so great that, by loudspeaker, each person was asked to crowd over so that three people could sit where two

would normally sit, and so I suppose it is safe to say that there were 60,000 people gathered there that evening.

The Governor of the state was there, the mayor was there, we had other dignitaries there. Gen. Hap Arnold was there and gave a half-hour radio talk on a national hook-up. It was a great occasion. But perhaps you will understand why the outpouring when I tell you that Jerry Colona was there, and Frances Langford was there, and Bob Hope was there. Need I say more?

Yet in spite of the attractions and the grandness of that program, there was a young fellow who was wearing the khaki of Uncle Sam's Army who stole the show. Just about the middle of the program, he stood out there in the open end of that horseshoe stadium, which had as its backdrop beautiful Lake Washington and the Cascade Mountains, and standing there in a simple, non-oratorical style, he said, "I want to say a few words to you about the purchase of war bonds." Then he went on to say, "Perhaps you think that the purchase of a $25 bond does not amount to much. I want to see if I can prove that you are mistaken. I wish every one of you would take a match out of his pocket. I am going to wait just a few moments, then I am going to ask that those floodlights be turned out, then I am going to ask that each one of you light his match."

Suddenly, the lights went out, and there was the most dazzling spectacle that those people who were there that night ever saw in their lives. A solid, blazing mass of light in a horseshoe made up of 1 match plus 59,999 others!

Do you think he drove home his point? I'll say he did! Twenty-five dollars multiplied by 60,000 is a pretty tidy little sum, so he drove home to every individual there the lesson, and the fact that the individual and the activity on the part of each individual do count, and I ask each of you not to forget that as you leave the halls of this conference room and go back home."

I believe that this excerpt really "drives the point home" about the importance of each individual and the impact of participation. Each one of us as an individual and all our professional organizations representing the fire service in the United States must participate in changing the current national building codes to mandate the installation of residential fire sprinkler systems in all new homes. Never underestimate the power of many or the importance of our participation. Together, we can make it happen. Remember, fire sprinklers save firefighters' lives, too.

From the Chair

Architects, Engineers and Building Officials Section to Sponsor Education Sessions, Events at WSC&E®

AEBO is sponsoring six education sessions and two section events at the 2007 World Safety Conference & Exposition® (WSCE®) at the new Boston Convention Center in Boston, Massachusetts, from June 3 to 7, 2007.

These exciting and interesting sessions include:

- **Human Behavior In Fires**
  Speaker: Eric Didderen
  Sunday, June 3, 8 to 9 a.m.

- **Hazardous Occupancies and Explosion Relief**
  Speakers: Sal DiCristina and Robert Davidson
  Sunday, June 3, 8 to 9 a.m.

- **Fair Housing Accessibility Requirements Overview**
  Speaker: Allan Fraser
  Sunday, June 3, 11 a.m. to 12 p.m.

- **NFPA's New Emergency Evacuation Planning Guide for People with Disabilities**
  Speaker: Allan Fraser
  Monday, June 4, 11:30 a.m. to 12:30 p.m.

- **Update on the 2008 Edition of ANSI/ICC A117.1, *Standard for Accessible and Usable Buildings and Facilities***
  Speaker: Allan Fraser
  Tuesday, June 5, 8 to 9 a.m.

- **Where Does He Get All Those Wonderful Toys?**
  (Inexpensive tools for AHJs)
  Speaker: Allan Fraser
  Tuesday, June 5, 11 A.M. to 12 P.M.

The first section event is the AEBO Executive Board dinner meeting, to be held on Saturday, June 2, from 6 to 9 p.m. Board members will discuss their thoughts and ideas on programs for next year; on-going activities including staffing, training, and development of support products for NFPA 5000®, *Building Construction and Safety Code®*; and other subjects related to the section's interests.

The other event is the AEBO general business meeting, open to all section members, to be held on Monday, June 4, at 4 to 5 p.m. in the Boston Convention Center. Members will elect an architect, an engineer, and a building official to the Executive Board at this meeting. The nominating committee will present a slate of candidates, but nominations may also be made from the floor. It's your section, so please make every effort to attend this meeting.

In addition, AEBO Board members and staff will be at the AEBO booth in the exhibit hall at the convention center. Stop by and find out what new directions the Board is pursuing, pick up general information, ask any questions you may have, give us your suggestions for programs or other ideas to improve the section, fill out a free membership application, or just introduce yourself.

The exhibit hall will be open on Sunday, June 3, from 3:30 to 7:30 p.m., with a networking event from 5 to 7:30 p.m. The hall will also be open on Monday, June 4, from 11 a.m. to 4 p.m. and on Tuesday, June 5, from 10 a.m. to 2 p.m.

AVIATION

Aviation Section Tour of Logan International Airport

BY MARK CONROY

As a member of the Aviation Section, you are cordially invited on an exclusive behind-the-scenes tour of some of the most interesting fire protection aspects of Boston's Logan International Airport on Monday, June 4, 2007. The section's Executive Board has taken the opportunity to set this tour up since the NFPA World Safety Conference & Exposition® is being held just across the harbor at the new Boston Convention & Exposition Center.

The tour will include a guided walk-through of the state-of-the-art fire station and rescue and firefighting equipment. Attendees will also get to see the technological advances used on the airside of the newly constructed, fully protected Terminal A. Weather permitting, members will also be welcomed aboard the 76-foot (23-meter) fireboat, Howard W. Fitzpatrick, for an on-the-water demonstration of its capabilities. This will give you an opportunity to see the Boston waterfront from

the water side, so bring your camera. Tour attendance will be limited to the capacity of the boat.

Section members will also be treated to a cocktail and hors d' oeurves reception at the famous seafood restaurant, Jasper White's Summer Shack, in Terminal A. Logan Airport Fire Chief Bob Donahue has arranged for Massport to sponsor this event, and his department members will be our guides.

The tour will be held on Monday afternoon, and attendees will be required to have security clearance before arrival. We look forward to an informative and exciting afternoon on the airport and on the water. If you are interested in joining us, please send a quick email to Patti Mucci at pmucci@nfpa.org. A security form and identification requirements will be sent to you in a reply email. Bus transportation is included.

Mark Conroy is the former Aviation Section executive secretary.

EDUCATION

Messages from Marathon

BY PAUL SCHWARTZMAN

On April 16, thousands of runners from around the world assembled for the 111th running of the Boston Marathon. Several years and maybe a few pounds ago, I laced up my running shoes for a similar adventure in southern Utah. I thought a review of lessons I learned at the marathon would be an appropriate subject for those who are vested in life safety and fire prevention.

While preparing for my race into the history books, I developed several rules to help me keep my perspective on the event. First, always, always finish the race. Second, if possible, don't walk. Third, if possible, don't come in last. Fourth, don't do anything that would embarrass your mother, wife, or children. And last, if running on a parade route, finish before the horses start. For a runner, each of these made sense and added perspective to a long run. The only rule beyond negotiation was finishing the race; we always finish.

Working to protect our neighbors and friends is, in many ways, like running a marathon—always in a state of change, from the terrain we cover to how we feel.

Our "race course" is dynamic. From changing technologies, to changing politics, to shifting public perception, each provides a unique challenge we may or may not approach in the same manner. The course may be different, but the rules are the same.

First, keep your eyes on the prize. When the gun sounded in the middle of nowhere in southern Utah, I visualized the balloon arch that awaited me a mere 26.2 miles (42.2 kilometers) away. That was my destination. Each of us made that same decision when we chose to pursue fire prevention and life safety education.

Second, remember that all terrain is not created equal. As much as I hated them, each hill I encountered on the course

represented a different challenge. Some were steep and required a short stride, while others were gradual and didn't require much adaptation. Later in the race, they were a welcome relief for my hips and knees. Not all—or perhaps any—adversity is bad. Remember, adversity forces us to change our perception or strategies, and that is good for us and those we serve. On the other hand, a course that is all down hill is not that great, either. When it seems too easy, it often is.

Third, don't forget the Vaseline® and nourishment. As you run your life-safety marathon, there will be friction points. Left unattended, they will eventually cause you great pain. If you can identify these points and coat them in Vaseline®, your race will be much better. The Vaseline® I recommend is persistence, positive reinforcement, and outstanding personal relationships. In our business, the messenger is every bit as important as the message. Do we walk the walk or just talk the talk? Look for opportunities to nourish your fire- and life-safety passion. The World Safety Conference & Exposition®, professional colleagues, and time doing things with your family and friends will help nourish you for the long haul.

And last but not least, finish. Always finish. Each milestone or aid station you pass takes you closer to your goal. Be patient but persistent. I passed under the balloon arch in a mere five hours and two seconds. I was tired, sore, and satisfied. That same satisfaction has repeated itself with successful Learn Not To Burn® and Risk Watch® start-ups. That satisfaction can be the result of watching sprinkler or fire safe cigarette legislation passed into law. Each represents another balloon arch made by many passionate and dedicated professionals.

So what do you say? Lace 'em up tight. On your mark! Get set! Let's go!

Fire Service

2007 Nominating Committee Report

The Fire Service Section will vote on the Nominating Committee report below at the section business meeting, which will be held in conjunction with the 2007 World Fire Safety Conference & Exposition® (WSC&E®) in Boston from June 3 to 7.

The business meeting will be held on Tuesday, June 5, from 12 to 1 p.m. at the Boston Convention Center. Please check monitors for room location.

The Nominating Committee, which consists of Chair Terry Allen of the Cambridge, Ontario, Fire Department; Ron Farr of the Kalamazoo, Michigan, Fire Department; and Bill Peterson of Plano, Texas, has nominated Chief Donna Brehm of the City of Virginia Beach Fire Department,Virginia Beach, Virginia; Tom Cuff of Firemen's Association, The State of New York, Levittown, New York; and David Kennedy of Glasgow, Scotland to serve as directors for 2007–2009 of the NFPA Fire Service Section Executive Board.

HEALTH CARE

CHAIR'S CORNER

BY SUSAN MCLAUGHLIN

As you read this, we are very close to the World Safety Conference & Exposition® (WSC&E®) in Boston, and I hope you plan to attend. The Health Care Section looks forward to greeting you at one of our meetings, educational sessions, or our hospitality room, where we invite you to stop by for a cup of coffee, an impromptu meeting, or just a chat.

The topics for our section-sponsored educational sessions include fire department pre-incident planning and operations. A mutual understanding of the issues by both the fire department and the hospital before an emergency is critically important in defend-in-place occupancies, and representatives from both arenas will present the program. Melinda Stibal, a member of the HICS IV national work group, will reprise her 2006 preview session on the hospital incident command system document, which has now been released.

Although not sponsored by the Health Care Section, Burton Klein will discuss issues of electrical safety for electricians working in health care facilities.

The Health Care Section Town Hall Meeting has become an annual favorite. A panel of experts will discuss current topics of interest to the health care industry, some of which will be chosen in advance. Attendees will also have the opportunity to suggest other topics and, of course, ask questions.

The conference would not be complete without the section's traditional codes and standards review. It is critical to attend this session before voting at the Technical Committee Review session. A committee of experts done a tremendous amount of work screening the *Report on Comments* and the *Report on Proposals* to condense for the rest of us any issues that will affect the health care industry in the codes and standards coming up for vote. They have recommended actions the section's Board can take, where appropriate.

Finally, some words of thanks, as this meeting will mark the end of my term as section chair. First, to the Health Care Section Executive Board, First Vice-Chair Tom Gardner, Second Vice-Chair Dean Menken, Secretary Phil Thomas, Immediate Past Chair Dick Strub, and members Don Bender, Max Hauth, Richard Nolen, Tom Salamone, and Dale Woodin. Your participation and support has been invaluable.

My sincere thanks for all the hard work Mike Daniel, chair of the Codes and Standards Review Committee, has done and for the outstanding job Pete and Judy Gregor have done staffing the Health Care Section Hospitality room each year at the WSC&E. Many others have chaired task groups and special projects over the years or participated on committees. Without listing you all, please know that your work is noticed and appreciated. And none of this would come together without Health Care Section Executive Secretary Rich Bielen.

Finally, I want to express my appreciation to Tom Jaeger, Health Care Section Nominating Committee chair, and Doug Erickson for their ongoing advice and council.

I have enjoyed serving the Health Care Section as chair these past two and a half years, and look forward to the next two in my new role as immediate past chair.

Nominating Committee Report

The Nominating Committee has nominated the following members for positions on the section Board:

Chair: Thomas Gardner
First Vice-Chair: Dean Menken
Second Vice-Chair: Phillip Thomas
Secretary: David Hood
Immediate Past Chair: Susan McLaughlin
Board Member, two-year term:
Donald Bender and Richard Nolen
Board Member, three-year term:
Max Hauth, Chris Mallett, and Jeff Coombs

Section members will vote on this slate at the 2007 WSC&E. Additional nominees will be placed before the members along with the committee's nominations if the executive secretary receives them in writing, with signed, documented support by 30 or more members, no fewer than 15 days before the section's meeting.

Education Seminars at WSC&E

The section will conduct several educational sessions at the WSC&E®.

Monday, June 4:

HCS task group meetings	7 to 8 a.m.
M16 Health Care Codes and Standards Review	8 to 11 a.m.
M39, Fire Dept Pre-Planning and Operations	11:30 a.m to 12:30 pm
IFMA/HCS meeting	1:30 to 3:30 p.m.
M60, Health Care Town Meeting	3:30 to 5:30 p.m.

Tuesday, June 5:

HCS Executive Board Business Meeting	*7:30 to 9:30 a.m.*
T24 HICS Version 4	*9:30 to 10:30 a.m.*

INTERNATIONAL FIRE MARSHALS ASSOCIATION

Nominating Committee Report

On behalf of of the 2007 Nominating Committee, which consists of Chair Scott W. Adams, Chief Ronald F. Farr, and John Robison, and pursuant to Article 8 of the *Constitution* and *By-Laws* of the International Fire Marshals Association, I submit the following nominees for election to the offices of the International Fire Marshals Association. This slate of nominees will be acted upon by the IFMA membership at the WSC&E on Tuesday, June 5, 2007, at 12 pm. Please verify time and location in the program.

President: Jon Nisja
First Vice-President: Jimmy Hill
Second Vice-President: Ed Altizer

Secretary: R. T. Leicht
Board Members (expires 2009):
Steve Peavey and David Lind

Please see the summer edition of the *IFMA Quarterly* for the complete agenda of IFMA activities during the WSC&E.

Professional development

Please visit www.nfpa.org/ifma for additional information and upcoming events. Anyone interested in attending or sponsoring a program may contact Section Executive Secretary Steven F. Sawyer at (617) 984-7423 or ssawyer@nfpa.org.

Web Board

IFMA has a Web board where you can post news or information on educational offerings and employment opportunities. You can also add remarks to each posting. Anyone interested can sign up at www.nfpa.org/ifma.

Industrial Fire Protection

Section-Sponsored Sessions to Be Held at WSC&E®

BY DALE J. ROMME

I hope all of you Industrial Fire Protection Section (IFPS) members have bought your plane tickets and booked your hotels in Boston for the 2007 World Fire Safety Conference & Exposition® (WSC&E®) the first week of June. It will be a great time to further our knowledge of fire safety advancements, get reacquainted with infrequently seen colleagues and friends, and even relax. The conference starts Sunday morning at 8 a.m. with educational sessions. The general session is at 1 p.m., and this year's keynote speaker is David McCullough, author of such great literary works as *John Adams* and *1776*. You won't want to miss this event!

Over the past year, your IFPS Board has been busy helping organize and recruit presenters for this year's educational sessions. Following are some of the sessions you can expect to see:

Sunday, June 2

- Protecting Ethanol Fuel Facilities—Criteria for Detection and Discharge of Foam Systems
- Combustion Control: What You Should Know?

Monday, June 3

- A Guide to Regulating Hazardous Materials Storage with NFPA 1, NFPA 5000, NFPA 55, and NFPA 400
- Update on Premises Security
- NFPA 69—Explosion Prevention Systems: Changes for 2007 Edition
- BCP Roundtable Discussion, Part Two: Lessons Learned from Katrina
- Fire Protection Challenges Presented by Composite Intermediate Bulk Containers

Tuesday, June 4

- Case Study: Chemical Safety Board Final Report on Industrial Explosions Involving Combustible Powders
- Implementing a Security Vulnerability Assessment Process
- OSHA's Compliance Assistance Resources

You are also invited to attend our business meeting on Tuesday from 5:45 to 6:45 p.m. Please come and network with industrial community peers and enjoy some refreshments.

Finally, I would like to leave you with a little story that shows how much work our section still has to do to advance the philosophy of sound fire safety and protection.

Last fall, I was visiting a processor of Hallmark U/K's in Poland. A colleague and I had just toured a state-of-the-art printing facility whose multi-million-dollar Heidleburg printing presses were so

automated I didn't even know they existed. And the proprietor was looking to triple the size of his operation in the near future.

Given that the facility had no automatic sprinkler protection, just a smoke detection system to protect this large investment of machinery and equipment, I asked the owner if he would install a sprinkler system when the new printing area was built.

"And put water on my presses?" he asked incredulously.

Needless to say, this very successful businessman and highly educated printing engineer did not understand how an automatic sprinkler system works.

I imagine all of us could share similar stories. Whether the subject is automatic sprinkler protection or some other equally important form of property protection or loss control and life safety principle, we still have a lot of work to do to further the cause of fire safety throughout the world.

See you in Bean Town!

RESEARCH

The Section Will Sponsor Sessions at WSC&E

Once again, the Research Section will have a booth at the 2007 World Conference & Exposition® (WSC&E®) in Boston in June. Please stop by and meet members of the section and the Board.

The section will also sponsor 14 speaker sessions at the WSC&E covering a wide range of topics, including the legacy of The Station nightclub fire. Other topics include thermal imaging in fire service applications; positive-pressure ventilation in high-rise buildings; the feasibility of predicting large-scale performance with parallel panel tests; smoke detector performance with deep beams and deep-beam pockets; residential sprinkler interaction with ceiling fans; a simulation of the Howard Street tunnel fire in Baltimore; the use of emergency ventilation systems in road tunnels; the application of video smoke and flame detection systems in vehicle tunnels; visual signaling for big box stores; tactical information systems for public safety officials: response to intelligent buildings; and research results of smoking, cooking, and rural fire safety.

We will also have a special invited-papers session, at which three students from Worcester Polytechnic Institute and the University of Maryland will present some of their recent research into hold-time prediction models for total flooding systems; delays in sprinkler activation; and the failure of World Trade Center 5.

Details on these and other education sessions can be found at www.nfpa.org.

Bigglestone Award

The winners of the 2007 Bigglestone Award will present their work at the WSC&E on June 4. The Bigglestone Award is presented annually to the authors of the most outstanding paper submitted to *Fire Technology* during the previous calendar year.

Section Business Meeting

Also on June 4 is the section's annual business meeting, which will be held from 1:30 to 2:30 p.m. at the Convention Center. Check on-site for the room location. Please plan to attend to discuss presentations the section can sponsor at future meetings and other efforts to build the section.

WILDLAND FIRE MANAGEMENT

National Wildland Fire Management Awards

In November 2004, the Wildland Fire Management Section established an awards program to recognize outstanding work by local, state, or federal agency personnel, individuals associated with wildland fire management, public education, and others who meet the criteria for specific awards in the following categories:

Wildland Fire Public Education

For outstanding work that increases the quality and effectiveness of information and education to the public in the areas of wildland fire, wildland fire ecology, or

related areas; for innovation in establishing or using delivery mechanisms to reach the public with forest and wildland fire education programs; or for an increased emphasis on education, citizen participation, and community sustainability in local, state, and federal agencies and organizations.

Wildland Fire Prevention

For outstanding work in engineering concepts or standard operating procedures that prevent disastrous losses of resources, wildland/urban interface structures, and lives, including arson and fire investigation, incident reduction programs, community collaboration, and support in preventing unwanted wildland fire.

Wildland Fire Risk Mitigation

For outstanding work in developing or establishing local mitigation efforts that have been implemented and have been shown to work. For example, this award may be given when a community has taken active mitigation steps that have minimized damage from a wildland fire. There need not have been a documented wildland fire that tested the mitigation activities carried out, but documentation of how the mitigation and planning effort might affect a future fire is required. The mitigation activities must be shown to have been successful at reducing damage over a previous fire in the same area, for example, or would be successful in the event of fire.

Wildland Fire Planning

For outstanding work in the development of agency or community fire planning through the use of GIS mapping and information sharing; collaboration with other agencies or organizations; efficient use of planning resources; delivery of planning techniques, training, or assistance; the creation or improvement of wildfire preparedness plans such as a Community Wildfire Protection Plan; or other related work in the area of planning to reduce the impact of wildland fires on the environment, communities, and response agencies.

Wildland Fire Management

For outstanding work in the improvement of fire management strategies and tactics and related programs that have been shown to reduce resource losses or fire management costs, improve effectiveness, and result in other improvements, such as organizational steps that have minimized damage from a wildland fire or its aftermath, such as watershed damage.

Wildland Firefighter Safety

For outstanding work in developing or establishing firefighter training, initial response tactics, or a related program that effectively reduces firefighters' risk of injury or death, increases awareness of firefighters' risks, establishes innovative safety policies, or develops personal protective safety equipment or use. Any training program or policy must be consistent with NWCG or NFPA standards for training, operations, or policies.

General Rules and Guidance

The following rules apply, unless otherwise specified:

1. Awards may be made annually, depending on activities, the number of nominations, and other circumstances.

2. Nominees do not have to be NFPA or Wildland Section members. Nominees may be an individual or a group.

3. Nominations for any of the awards may come only from an NFPA member who does not have to be a member of the Wildland Fire Management Section. The nomination form must be endorsed by the appropriate Section Regional Director, as published in the November/December 2004 issue of *NFPA Journal*.

4. The same individual or group may be nominated for multiple categories.

5. Winners will present a review of the activities that resulted in the nomination or provide information for an article to be published in *Wildfire News & Notes*,

NFPA Journal, or another publication, as determined by the Executive Board.

6. The Section Executive Board shall establish an Award Review Committee to review nominations and present their recommendations to the full board for approval.

7. Nominations shall be sent to the Wildland Section Executive Board through the Section's Executive Secretary, who will forward them and all accompanying documentation to the Award Review Committee for consideration and decision.

Any local, state, or federal agency personnel, individuals associated with wildland fire management, public education, fire prevention, planning, mitigation, firefighter safety and training, or others who have, for the year before the award, shown commitment to these areas and other related fields may be nominated. Programs or activities for which the nominee was responsible must have taken place within the two years before the annual date of the award. For example, the activities for a 2006 award must have taken place in 2004 or 2005.

Submission of Nominations

The nomination and accompanying supporting documentation may be submitted to the Wildland Fire Section Executive Board at any time. The closing date for all nominations will be approximately 90 days before the opening of the WSC&E®. The specific date will be announced on the NFPA website.

Presentation of the Award

The award will consist of a signed certificate, an opportunity to present a summary of the program or project to an international audience in print or personal appearance, and any other form of recognition the Board of Directors deems appropriate.

The awards may be presented annually to honor and recognize individuals or groups whose innovation, creativity, and efforts measurably increased public understanding of the use and value of protecting forest and open lands from unwanted fire, reduced risks to life and property, or improve the sustainability of wildlands and structures in the wildland/urban interface.

The Wildland Fire Management Section Board will present the awards at the WSC&E at its discretion. Recognized individuals or representatives of the group selected may be provided travel funds to accept the award and make a presentation to the section or other organizations or conferences, as determined by the Executive Board.

INFORMATION SECTION FORUM

ARCHITECTS, ENGINEERS AND BUILDING OFFICIALS
Section Chair: John Kampmeyer, Triad Protection Engineering Corp.
Executive Secretary: Allan Fraser, (617) 984-7411, afraser@nfpa.org
Web Site: www.nfpa.org/aebo

AVIATION
Section Chair: Nathaniel J. Addleman, P.E., RJA Group, Inc., Houston, Texas
Executive Secretary: Rich Bielen, (617) 984-7279, rbielen@nfpa.org
Web Site: www.nfpa.org/aviation

BUILDING FIRE SAFETY SYSTEMS
Section Chair: Ray Grill, P.E., FSFPE, ArupFire, Washington, D.C.
Executive Secretary: David Hague, (617) 984-7452, dhague@nfpa.org
Web Site: www.nfpa.org/bfss

EDUCATION
Section Chair: Paul Schwartzman
Executive Secretary: Judy Comoletti, (617) 984-7287, jcomoletti@nfpa.org
Web Site: www.nfpa.org/edsection

ELECTRICAL
Section Chair: H. Brooke Stauffer, National Electrical Contractors Association
Executive Secretary: Jeff Sargent, Executive Secretary, (617) 984-7442, jsargent@nfpa.org
Web Site: www.nfpa.org/electrical

FIRE SCIENCE AND TECHNOLOGY EDUCATORS
Section Chair: Patrick Kennedy, John A. Kennedy & Associates
Executive Secretary: Frank Florence, Executive Secretary, (617) 984-7480, fflorence@nfpa.org
Web Site: www.nfpa.org/firescience

FIRE SERVICE
Section Chair: Kirk Owen, Plano Fire Department, Plano, Texas
Executive Secretary: Gary Tokle, Executive Secretary, (617) 984-7490, gtokle@nfpa.org
Web Site: www.nfpa.org/fireservice

HEALTH CARE
Section Chair: Susan McLaughlin, SBM Consulting
Executive Secretary: Richard Bielen, (617) 984-7279, rbielen@nfpa.org
Web Site: www.nfpa.org/healthcare

INTERNATIONAL FIRE MARSHALS ASSOCIATION
Section Chair: Supervisor Jon Nisja, Minnesota State Fire Marshals Office, St. Paul, Minnesota
Executive Secretary: Steven Sawyer, (617) 984-7423, ssawyer@nfpa.org
Web Site: www.nfpa.org/ifma

INDUSTRIAL FIRE PROTECTION
Section Chair: Dale Romme, Hallmark Cards
Executive Secretary: Amy Spencer, (617) 984-7498, aspencer@nfpa.org
Web Site: www.nfpa.org/industrial

LATIN AMERICAN
Section Chair: José Figueroa, FM Global
Executive Secretary: Olga Caledonia, Executive Secretary, (617) 984-7231, ocaledonia@nfpa.org
Web Site: http://www.nfpa.org/latinamerican

LODGING SECTION
Section Chair: Richard Anderson, CFPS
Executive Secretary: Gregory Harrington, (617) 984-7471, gharrington@nfpa.org
Web Site: www.nfpa.org/lodging

METROPOLITAN FIRECHIEFS
Section Chair: Chief Keith Richter, Contra Costa County Fire, California
Executive Secretary: Russ Sanders, (502) 894-0411, rsanders@nfpa.org
Web Site: www.nfpa.org/metro

RAIL TRANSPORTATION SYSTEMS
Section Chair: James Gourley, FPE
Executive Secretary: Jim Lake, Executive Secretary, (617) 984-7470, jlake@nfpa.org
Web Site: www.nfpa.org/rail

RESEARCH
Section Chair: Daniel Madrzykowski, NIST
Executive Secretary: Rita Fahy (617) 984-7469, rfahy@nfpa.org
Web Site: www.nfpa.org/researchsection

WILDLAND FIRE MANAGEMENT
Web Site: www.nfpa.org/wildland
Section Chair: Lewis Blair, Hydra Service, Inc.
Executive Secretary: Jim Smalley, Executive Secretary, (617) 984-7483, jsmalley@nfpa.org

NFPA Code Training

Apply the latest provisions with confidence and improve your job performance with help from NFPA.

Earn Valuable CEUs!

FIRE & LIFE SAFETY CODE SEMINARS

- ***Life Safety Code® Essentials (NFPA 101®)***
  Learn to achieve the life safety goals and objectives for any given occupancy
- ***Life Safety–Focus on Occupancies***
  Apply life safety concepts to a wide variety of occupancies
- ***National Fire Alarm Code® (NFPA 72®)***
  Avoid installation errors, failed inspections, and false alarms
- ***Fire Alarm Inspection, Testing, and Maintenance***
  Assure the long term reliability of your fire alarm systems
- ***Installation of Sprinkler Systems (NFPA 13)***
  Verify the proper installation and use of any sprinkler system
- ***Fire Pumps (NFPA 20)***
  Recognize the correct installation, testing, and operation of fire pumps
- ***Sprinkler Systems Maintenance (NFPA 25)***
  Ensure optimal performance of your water-based fire protection system
- ***Fire Protection Systems Plans Review***
  Provides hands-on experience with actual plans
- ***CFPS Primer***
  Increase your chance for success on the CFPS examination
- ***Fire Alarm Interfaces***
  Learn about the systems and equipment typically controlled or monitored by the fire alarm system
- ***Disaster/Emergency Management & Business Continuity Programs (NFPA 1600)***
  Develop, implement, and keep your organization's program current

SEMINARS AT YOUR FACILITY:
Holding NFPA seminars at your facility is a great way to save money, increase productivity and train groups of 10 or more people. To learn more, call toll-free 1-877-336-3280 or email onsiteseminars6@nfpa.org.

Upcoming Seminar Dates & Locations

MAY 14-18
Nashville Airport Marriott
600 Marriott Drive
NASHVILLE, TN
615-889-9300

MAY 21-25
Fremont Marriott
46100 Landing Parkway
FREMONT, CA
510-413-3700

JUNE 11-15
Embassy Suites Hotel
1100 SE 17th Street
FT LAUDERDALE, FL
954-527-2700

JUNE 18-22
Renaissance Chicago–North Shore
933 Skokie Blvd.
NORTHBROOK, IL
847-498-6500

NFPA®

Register today at www.nfpalearn.org or call toll-free 1-800-344-3555

Faculty:

All NFPA seminar instructors are experts who have participated in the development of NFPA codes and standards or are nationally recognized consultants. They have been selected for their extensive knowledge as well as their exceptional teaching abilities.

Art Black
Principal, Carmel Fire Protection Assoc.

Merton Bunker, P.E.
Principal, Merton Bunker & Associates

John M. Cholin, P.E., F.S.F.P.E.
Principal, J.M. Cholin Consultants, Inc.

Ron Cote, P.E.
Principal Life Safety Engineer, NFPA

Brandon Frakes, C.F.P.S.
Sr. Loss Prevention Consultant, Global Asset Protection Services

David R. Hague, P.E.
Principal Fire Protection Engineer, NFPA

Gregory Harrington, P.E.
Principal Fire Protection Engineer, NFPA

Timothy A. Hawthorne
Hawthorne Consulting

Joseph M. Jardin, P.E.
Fire Protection Engineer, FDNY

Philip R. Jose, P.E.
Fire Protection Engineer, P.R. Jose & Associates

William E. Koffel, P.E.
President, Koffel Associates, Inc.

James Lake
Sr. Fire Protection Specialist, NFPA

James K. Lathrop
Vice President, Koffel Associates, Inc.

Martin LePore
Training Specialist, Maryland Fire & Rescue Institute

Wayne M. Martin
Civil Engineer & Fire Protection Engineer, Wayne Martin & Associates, Inc.

Jeffrey Moore, P.E., C.F.P.S.
Hughes Associates, Inc.

Wayne D. Moore, P.E., C.F.P.S., F.S.F.P.E.
Principal & Director, New England Operations, Hughes Associates, Inc.

Warren Olsen
Partner, Fire Safety Consultants, Inc.

Kirsten M. Paoletti
Fire Protection Design Engineer, Robson Woese, Inc.

C. Kingsley Poole
Program Coordinator, Maryland Fire and Rescue Institute

Milosh Puchovsky, P.E.
Principal Fire Protection Engineer, NFPA

Richard Roux
Sr. Electrical Engineer, NFPA

James (Jimbo) Schifiliti
Partner, Fire Safety Consultants, Inc.

Robert P. Schifiliti, P.E.
President, R.P. Schifiliti Associates, Inc.

Donald L. Schmidt, ARM
CEO, Preparedness, LLC

Craig Schroll, C.S.P.
President, FIRECON

Gerald R. Schultz, P.E.
Principal, The FPI Consortium, Inc.

John A. Sharry
Principal, Sharry and Associates, Fire Protection Consultants

Joe Versteeg
Principal, Versteeg Associates

Lawrence J.Wenzel, P.E., C.F.P.S.
Sr. Fire Protection Engineer, Hughes Associates, Inc.

Classifieds

FOR SALE

Fire Protection and Security System Business located in Great Falls, MT. service all of Montana. For information call John Koslosky @ 406-452-8724.

Senior Product Development Engineer - Fire Fighting

Kidde Fenwal, dba Kidde Fire Fighting has an opening in Angier, North Carolina for a Senior Product Development Engineer - Fire Fighting.

Responsible for the development of new and improved product designs for proprietary hose and flexible pipeline applications. Conceptualize, develop, and evaluate new product design alternatives. Investigate and resolve technical issues relating to product performance. Develop, evaluate, and implement improved and optimized production processes.

Must possess at least a bachelor's or its equivalent in Physics, Engineering, or a related field and relevant work experience. This experience must include: textile and/or extrusion technology; quality systems/requirements such as ISO 9000 and Mil Standard; designing, testing and manufacturing lay flat hose; preparing the test plan program and managing the testing to ensure product meets requirements; and meeting customer technical specifications for lay flat hose. Forward resume to Cindy Hunter, Human Resources Manager, Kidde Fire Fighting, Inc., 141 Junny Road, Angier, NC 27501.

first word from page 6

to learn from these experiences and where appropriate, develop new strategies to reach the people most at risk.

All across the country our fire departments are working hard to get the fire safety message out to the public and in doing that they have saved countless lives. But the fire service is not complacent and neither are we at NFPA. We are pushing hard for fire safe cigarette legislation and residential sprinklers. We are developing new ways to deliver our public education messages. We are working with the fire departments to develop the strategies to attack the fire problem creatively. We have made great progress in the past, but tragedies like the one in the Bronx remind us how far we still have to go.

structural ops from page 42

hazardous to everyone and should be avoided.

Before attempting any rescue, determine if committing limited resources to rescuing occupants is the best option. A defend-in-place concept is used in some occupancies, such as high-rise buildings and health care facilities, where occupants are moved away from the fire area but remain in the structure. Many large buildings are constructed in a manner that would allow a defend-in-place strategy. The following should be considered: Would it be safer to leave occupants in place in sections of the building that have not been contaminated by the products of combustion? Or would it be better to evacuate these occupants through smoke-filled corridors and stairwells? As more difficult rescue methods are considered, the question of the necessity of the rescue becomes critically important. If the fire can be rapidly extinguished or if the building is protected by a sprinkler system, defend-in-place strategies may be the best alternative. If, however, the Incident Commander's size-up indicates that occupants should be rescued, then determine the safest and most efficient means of removing occupants.

If it is necessary to remove people from a multi-story building, use the interior stairways as a first choice. When a decision has been made to remove occupants from the building, always use the safest and most efficient means available.

buzzwords from page 46

AFAA how many of the AHJs in attendance enforce the requirements of *National Fire Alarm Code*. The answer is not too surprising. Less than 1 percent feel that they properly enforce the requirements of the *National Fire Alarm Code*. Why is it that the one person who has the greatest chance to ensure the installed fire alarm systems in his or her jurisdiction will be false alarm free and operationally reliable does not enforce the NFPA 72 that will help guarantee just that?

The industry has what it needs to provide an operationally reliable fire alarm system. As Tom Hammerberg of the AFAA concluded, "Through communication and working together, we can meet our goal of operationally reliable fire alarm system installations."

AD INDEX

NOTICE CONCERNING ADVERTISING

NFPA reserves the right to accept or reject any advertisement submitted for publication in *NFPA Journal*. However, NFPA doesn't attempt to investigate or verify claims, including claims of compliance with NFPA codes and standards, made in advertisements appearing in *NFPA Journal*. The appearance of advertising in *NFPA Journal* in no way implies endorsement of, or approval by, NFPA of any advertising claims or of the advertiser, its product, or its services. NFPA disclaims any liability whatsoever in connection with advertising appearing in *NFPA Journal*.

nfpa JOURNAL

Advertising Sales Offices

New England/Mid-Atlantic
ME, NH, VT, MA, RI, CT, NY, NJ, PA, MD, DE, DC
Merrie Lynch
CEL Associates II
20 Park Plaza, Suite 517
Boston, MA 02116
(617) 357-8190
Fax (617) 357-8194
adsalesml@nfpa.org

Southeast/Southwest
VA, WV, NC, SC, TN, GA, AL, FL, MS, AR, LA, OK, TX, NM, KY
Blake & Michelle Holton
Holton Enterprises
724 Long Lake Drive
Oviedo, FL 32765
(407) 971-6286
(407) 971-8558 (Michelle)
Fax (407) 971-8598
adsalesbh@nfpa.org
adsalesmh@nfpa.org

Midwest
IL, MI, IN, OH, WI
Chris Kennedy
Didier and Broderick
95 Revere Drive, Suite H
Northbrook, Ill. 60062
(847) 498-4520 (x3008)
Fax (847) 498-5911
adsalesck@nfpa.org

West Coast/Midwest
WA, OR, MT, ID, ND, SD, NE, KS, WY, CO, MN, IA, MO, IL, IN
Cynthia Louis
Louis Media
6730 Flagler Road
Fort Collins, CO 80525
(970) 223-3911
Fax (970) 223-3991
adsalescl@nfpa.org

West Coast
UT, AZ, NV, CA
Patrick Jagendorf
7202 South Marina Pacifica Drive
Long Beach, CA 90803
(562) 795-9134
Fax (562) 598-8242
adsalespj@nfpa.org

centennial

Fire protection engineering is often criticized as a "design by disaster" engineering discipline. Throughout history, however, major catastrophes, especially those involving a major loss of life, have resulted in important changes in design techniques, codes and standards, and regulations in virtually all engineering fields.

On September 11, 2001, the deadliest fire in U.S. history occurred when terrorists flew fully fueled jetliners into the World Trade Center Twin Towers in New York City, resulting in the fires and subsequent collapses that killed 2,749 individuals.

This event and subsequent investigations were discussed in the pages in *NFPA Journal*®.

The question currently being debated by the fire protection and structural engineering community is: "Will the WTC disaster result in significant changes to high-rise fire protection design or is this an event so extreme that it should be considered a one-of-a-kind event that cannot and should not be designed for?"

We do not currently design for the "worst of the worst" for any threat or hazard scenario, including hurricane, flood, tornado, earthquake, or fire, but we do take into account an acceptable level of risk. This includes both the likelihood of the event and its potential consequences; and we protect against the most frequent and likely extreme events utilizing redundancy, reliability, and tenability.

The National Institute of Standards and Technology (NIST) report on the WTC collapses contains a number of specific recommendations aimed at changing the current fire protection design in high-rise buildings as a result of this extreme event.

One of the more controversial recommendations is to increase the structural integrity and fire resistance of high-rise buildings to prevent progressive collapse in the event of a total burnout of one or more floors with sprinklers out of service.

While everyone can agree that the major collapse of a high-rise building as a result of a fire is generally unacceptable, the actual occurrences of fire induced building collapses are very rare.

A recent NIST survey identified only 22 collapses worldwide from 1970 to 2002, of which eight were total collapses including three on September 11, 2001. The number of these collapses involving the failure of an automatic sprinkler system is not known.

Given the historic reliability of automatic sprinklers and the key role that they play in modern high-rise fire protection design, some consider this to be a "worst of the worst" extreme event scenario. Many fire protection engineers around the world, however, even before the WTC collapses, were beginning to ask whether too much passive fire resistance had been "traded off" in favor of sprinklers.

Another controversial recommendation in the NIST WTC Report is that all high-rise buildings over 20 stories be designed to accommodate timely full building evacuation in large-scale emergencies. This is a major change in the philosophy of high-rise design, since full evacuation was previously considered unwarranted and impractical.

Historically the use of elevators for emergency evacuation has been considered unsafe. However with "mega" high-rise buildings now exceeding 400 meters (1,312 ft) in height, full evacuation utilizing stairs alone would appear to be problematic, especially if the needs of the mobility challenged are taken into account. Coupled with the success of the "defend-in-place" design concept utilized in health care and correctional facilities, this recommendation is also being challenged by some as overreaction to an unusual extreme event.

Another recommendation by NIST that is not as controversial is that a fire protection engineer be part of the design team for structures that employ innovative or unusual structural or fire safety systems. Major high-rise structures would seem to fall into that category.

The extent to which the WTC disaster will or will not change future high-rise design has yet to be determined. Consensus has yet to be established on the need for some of the more controversial recommendations in the NIST report. In the meantime, fire protection engineers worldwide will design the fire protection for high-rise buildings utilizing a combination of risk assessment and performance-based design to address extreme event analysis and mitigation along with codes, standards, and good professional practice for less extreme hazard scenarios.

—Art Cote, PE, FSFPE

OVERHEAD PROTECTION.

PROTECT YOUR BUDGET. PROTECT YOUR OCCUPANTS.
WITH PRESCOLITE'S SERIES OF FIRE-RESISTANT DOWNLIGHTS, FIRETIGHT.

Now there's a better solution to costly and ineffective custom-built enclosures for fire-rated recessed downlighting applications. FireTight is a simpler, less expensive alternative that is patented, tested, and UL approved for most one and two-hour fire-rated ceiling assemblies. FireTight is ideal for multi-story commercial and residential applications that require continuous fire-rated ceiling barriers, such as apartment buildings, hospitality, and assisted living facilities. Contact your Prescolite representative or log on to **www.prescolite.com** to learn how you can incorporate this new budget saving and lifesaving technology into your projects.

FireTight™

prescolite

HUBBELL Hubbell Lighting, Inc.

C UL US CLASSIFIED C UL US LISTED

Kidde Fire Systems

A UTC Fire & Security Company

more than a system—a solution.

Kidde Fire Systems has the solution for your fire protection needs. Whether you're protecting a control room, a mining vehicle, a restaurant's kitchen or a marine engine space, Kidde Fire Systems has the knowledge and the expertise in a wide variety of industries so we can help recommend a solution for YOUR application.

RISK ANALYSIS

First, we'll help you analyze the fire risk for your application.

SYSTEM CONFIGURATION

Next, we'll help you select the right system for the application and design with the best configuration of detection, notification, control and suppression components from Kidde's wide range of approved products.

INSTALLATION AND SERVICE

Finally, Kidde has a global network of trained professionals who will install and service your Kidde system.

Contact Kidde Fire Systems today and learn more about what Kidde Fire Systems can do for you.

Start by getting a free copy of our PROTECT-SPEC cd-rom...

1-800-872-6527 ext. 2394
www.kiddefiresystems.com

Kidde Fire Systems.
The world's leader in system solutions.