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Taking the guess work out of the numerous variables that impact the water delivery time of dry-pipe fire sprinkler systems.

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ABOUT NFPA
NFPA has been a worldwide leader in providing fire, electrical, building, and life safety information to the public since 1896. The mission of the international non-profit organization is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research, training, and education.

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ANYONE WHO HAS had to find a nursing home to take care of an aged parent knows how difficult that decision is. We want to make sure that we do everything we can to give our loved ones the best care and safest environment possible.

In the United States, we are lucky to have thousands of nursing home facilities that meet the highest standards of safety. Yet this last year has dramatically exposed an unnecessary danger in many nursing homes across the country, a danger that has led to a tragic loss of life.

On February 26, 2003, a fire in the Greenwood Health Center in Hartford, Connecticut, killed 15 residents—and this facility didn’t stand alone in nursing home fatalities for the year. On September 25, there were 15 reported fatalities in a Nashville, Tennessee, nursing home, among them the mother of a local district fire chief. And this year, in Maryville, Tennessee, five residents died in a nursing home fire on January 20. The next day, 14 died in a nursing home fire in Glasgow, Scotland. These kinds of fires are unacceptable and show that we need to do more to protect our aged and infirm in these facilities.

Technological advances and public awareness campaigns have helped reduce nearly every category of fire. At a time when it may seem comfortable to sit back and review the nation’s progress in reducing the number of fires and fire deaths, it serves us well to improve what is being done to protect every segment of the population from fire, especially our most vulnerable citizens. Many of us know what to do if fire strikes in our homes, but those who live in nursing homes must rely on help from caregivers at the time of fire. Will there be enough hands to lift and evacuate patients, close doors, and call for help, when the only fire protection systems in place are the “ordinary” ones, such as fire doors, smoke alarms, and portable fire extinguishers? The maximum fire protection that fire sprinklers add is a must in nursing homes.

This is what we know:

About 15 percent of all nursing homes in the United States are unsprinklered.

One-quarter of all nursing home fires occur in facilities that aren’t equipped with sprinklers.

Sprinklers can control fires where they start, alleviating the burdens placed on staff to deal with the blaze while relocating or evacuating patients.

Sprinklers must be installed in all existing nursing homes because the common fire protection measures that work well in them now need to be strengthened.

It’s likely that future codes will mandate sprinklers in all nursing homes. But code changes don’t arrive overnight and traditionally come about only after major fires. After the 1911 Triangle Shirtwaist fire in New York City killed 145 garment workers, for example, NFPA established a committee to prepare standards covering the construction of stairways and fire escapes, fire drills, and exits for properties such as factories. The committee’s recommendations eventually evolved into the current NFPA 101, Life Safety Code, adopted in three-quarters of all states today.

More recently, the nightclub tragedies in Chicago and Rhode Island drove changes to NFPA’s key codes, lowering the threshold for the installation of fire sprinklers in certain facilities, restricting seating patterns, and adding requirements for on-site crowd managers and regular egress inspections.

The nursing home tragedies in Hartford, Nashville, Maryville, and Scotland will also bring about changes in fire and life safety codes, advancing safety in such occupancies.

Strong codes and strong enforcement save lives. While we wait for revisions to our existing codes or the adoption of new codes to address rapidly occurring events of our time, let us not lose track of what we can do now. We can insist on fire sprinklers in all nursing homes.

James M. Shannon, President and CEO
NFPA
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PROMOTING STANDARDS

I just read the “Structural Ops” column in the January/February 2004 issue of NFPA Journal, entitled, “Hospitals, nursing homes need pre-incident plans,” by Ben Klaene and Russ Sanders.

It amazes me that even NFPA in its own publications fails to promote the use of its own standards. The column discusses the need for pre-incident plans and fails to men-

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FUNDING TROUBLES

At first glance, the SAFER Act ("A

NFPA RESPONDS

The “Structural Ops” column is limited to a brief overview of the subject matter, and each column makes clear that it is adapted from the book Structural Fire Fighting, which is available from the NFPA. I would think that at least some mention could have been added to the footnote about NFPA 1620....

RICHARD E. BOTT
Member, NFPA 1620 and NFPA 1250 Technical Committees

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SAFER Beginning," January/February 2004 [NFPA Journal] appears to be a real winner, but when faced with the reality of eventually having to fully fund the firefighters, no chief I know will dare submit for the grant. Our city councils are given a "political choice" when deciding on what services are funded and which are not; so the fire department will always lose and will most certainly eventually lose firefighters hired under the SAFER Act. The only solution to sustained public safety is to remove the fire department from the general fund. A legislative act requiring fire department staffing with a separate levy or tax dedicated to the fire department is the only way to protect cuts. I can talk to the city about [NFPA] 1710, firefighter safety, public safety, or any other logical issue related to desperately needed staffing until I'm blue in the face. The bottom line is, given the choice, our city governments will cut us when the budget gets tight.

MIKE WALKER
Chief, City of Fort Madison, Iowa, Fire Department

DELAYED SCHOOL EVACUATION

In reading the article in the September/October 2003 issue "Stay or Go?" by Karen Kroll, I was somewhat disturbed by what I was reading. The concept of delayed evacuation in schools...leaves too much to the "human factor." Every time we add more human interaction to a system, we're introducing more possibility of failure.

Typically, fire safety isn't a priority in schools. I'm sure everyone has come across overstuffed furniture in the classrooms, wall covering far more than 20 percent, blocked or chained exits, or poor construction practices. Recently, the high school in our town was renovated. During our progress inspections, we had major issues involving firestopping of corridor walls. The response of the contractor was: "You guys are strict. We don't have to do this anywhere else." So much for "building codes becoming very strict."

As we found in The Station nightclub fire, just having a code doesn't
mean compliance with the code. With this in mind, a fully sprinklered and alarmed building may not be as benign as you might expect.

Second, sending a janitor to check the alarm first. The level of training of a custodian may be fine in a pilot program, but what happens five years down the road when perhaps we haven’t been as diligent about training the staff as we should’ve been? I have trouble keeping staff up to speed on the evacuation procedure for the disabled. With this procedure, I would be asking staff to make life-and-death decisions, which may be far beyond their level of training. Firefighters often forget the power of fire. How can we expect school staff to have an accurate appreciation of how fast a fire can burn or how toxic smoke can be? Are we really proposing that a half-day training session will be adequate?

I understand there’s the concern about school shootings. I have some comments on that, as well. First, school shootings are rare. Second, the article acknowledges that would-be terrorists would likely just change their methods. So, my question is, if school shootings are rare and shooters would likely just change tactics, why would we change a procedure that has worked well for decades? Compromising fire safety in the name of security has proven fatal in the past.

Preventing false alarms is a big concern, but, again, I see other alternatives to sending school staff to investigate the alarm first. Working at a college campus, we’ve found ways to significantly reduce false alarms without putting lives at risk. Somewhat, it comes down to the almighty dollar. In the article, one school administrator is quoted as saying security cameras were too expensive. So the alternative is to compromise safety?

Fire-alarm maintenance is imperative to reducing false alarms. Simply testing the fire-alarm system every year isn’t maintenance. We have found maintained systems produce far fewer false alarms. In my community, plastic pull-station covers have significantly reduced false alarms even in our college dormitories. I don’t see why it wouldn’t work in schools. The Life Safety Code even allows manual pull stations to be omitted under certain circumstances.

Finally, the code even allows a pos-
itive alarm sequence in educational occupancies. A code-compliant positive alarm sequence is equipped with a number of safeguards to ensure the system will activate in an actual fire.

There are many alternatives to reduce false alarms within the current code, and, yes, they do cost money, but the loss of one child in a fire would seem to justify the expense.

One statement really caught my attention: “If there is any doubt, evacuate.” Don’t you think the nuns at Our Lady of the Angels School had doubts about staying in the building? Yet many of them died, and many students died sitting at their desk. This concept of not evacuating schools is a bad idea. Let’s not let history repeat itself.

MARK W. TETREAULT
Fire Marshal,
Durham, New Hampshire,
Fire Department

NFPA RESPONDS
As we noted in the article, NFPA doesn’t support the practice of delayed evacuation in schools. However, we feel such policies should be discussed openly and the Association’s position presented if they are being followed by a jurisdiction, such as Minnesota.

ERRATA

According to TIA 03-2 revised [Sections] 12.7.5.1 and 13.7.5.1 of NFPA 101-2003, “Assembly occupancies shall be provided with one trained crowd manager or crowd manager supervisor.” This TIA eliminated the threshold occupant load of 1,000 persons that would require a crowd manager or crowd manager supervisor. All assembly occupancies are required to have one crowd manager or crowd manager supervisor, regardless of occupant load. The only exception is assembly occupancies used for religious purposes with an occupant load not exceeding 2,000.

ERRATA
The photograph on page 34 of the “Quiet on the Set” article by Paul Ott incorrectly depicted the position of a fire sprinkler.
Home building industry eager to learn more about residential fire sprinklers

ACCORDING TO A recent Home Fire Sprinkler Coalition (HFSC) survey of builders and others in the home construction industry, less than one-fifth of respondents have built a home with automatic fire sprinklers, but nearly 90 percent said they would find an educational program on home fire sprinklers helpful. NFPA is a founding member of HFSC.

The study, conducted by Reed Research Group, indicates that more than two-thirds of respondents who had installed a sprinkler system did so to comply with a local ordinance. Twenty-three percent said they installed sprinklers in response to customer requests.

Builders who had installed sprinklers said the systems are placed in nearly one-third of the homes they build. Nationally, about 2 percent of new homes today have sprinklers installed.

The survey is part of the HFSC’s Built for Life program, which targets homebuilders and designers in an effort to dispel common myths about residential sprinkler systems and raise awareness of their many values. Although nearly three-quarters of respondents are aware that residential sprinkler systems run off standard water lines, more than one-third did not realize that sprinklers are individually activated, confirming a serious and potentially damaging gap in sprinkler knowledge.

Reducing misinformation among homebuilders is a priority for HFSC. In January, HFSC joined a group of sprinkler industry manufacturers in hosting an exhibit booth at the International Home Builders Show, which drew more than 90,000 building industry professionals. The booth contained a built-to-scale miniature house with a sprinkler system installed in compliance with NFPA 13D. Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Housing. The cutaway house allowed builders to get a behind-the-scenes look at how sprinklers are installed and work.

For more information, visit www.homefiresprinkler.org.

City of Las Vegas adopts NFPA 1, Uniform Fire Code™

LAS VEGAS HAS adopted the 2003 edition of NFPA 1, Uniform Fire Code™ (NFPA 1, UFC), as the city’s model fire code. NFPA 1, Fire Prevention Code, and the Uniform Fire Code are the two most widely adopted fire codes in the United States.

Las Vegas Fire & Rescue officials have amended the code to ensure that it meets the specific needs of the city. The amendments reflect the views of the fire code user community in Las Vegas.

"NFPA 1, Uniform Fire Code, is the best fit for our growing community," said David L. Washington, Las Vegas fire chief. "I feel that the city of Las Vegas will benefit greatly from working with NFPA and the next generation of the UFC."

The results are in!

NFPA’s 2003 WEEKLY Reader/Lifetime Learning Systems Fire Prevention Week project, funded by generous donations from the Home Safety Council and Pella Corporation, reached nearly 11.9 million students and their parents. Of the millions of families receiving materials, an estimated 6.63 million planned and practiced home fire escape plans.

Reaching young children and their families with life-saving fire safety information is the core of NFPA’s mission. Potential donors should contact the NFPA Public Education division at NFPA (National Fire Protection Association), 1 Batterymarch Park, Quincy, MA 02169-7471 USA, to discuss the continuation of this important project in 2004. For additional information, visit www.nfpa.org/education.
NFPA names Seattle Hazmat Response Team recipient of 2004 Warren E. Isman Education Grant

NFPA EDUCATIONAL MEMORIAL Fund Committee selected the Seattle, Washington, Hazmat Response Team as the 2004 recipient of the $2,500 Warren E. Isman Educational Grant.

The team will use the grant to attend the June International Hazardous Materials Response Teams Conference, sponsored by the International Association of Fire Chiefs (IAFC).

The grant is awarded to hazardous materials incident response teams from the fire service, the police, and other publicly funded programs seeking specialized training.


The IAFC initiated the grant in honor of Isman, a former Fairfax County, Virginia, fire chief, following his death in 1991. For more information, visit www.nfpa.org.

Fires in electronic equipment areas

In 1999, there were an estimated 1,259 reported U.S. structure fires that started in electronic equipment rooms.

Electronic equipment areas include computer areas and data processing centers, as well as control centers, radar rooms, telephone equipment rooms, and telephone booths. The same area of fire origin group is defined in NFIRS Version 4.1 and NFIRS Version 5.0, and it isn’t possible to separate the different types of rooms and areas in this category.

Note, too, that computer equipment (or other electronic equipment) need not be located in a room or area dedicated to such equipment. Conversely, a fire in a room that’s dedicated to such equipment need not start with the equipment. For example, fire could start in trash or in the room’s wiring system.

This table shows that the number of fires has declined since 1980, but there has been no sustained, consistent progress since 1987. Associated estimated losses in 1999 were 1 civilian death, 23 civilian injuries, and $31.0 million in direct property damage.

One- and two-family dwellings and apartments—the two components of homes—are two of the three leading property-use groups accounting for electronic equipment room fires for 1994-1998. For 1999, when it is no longer a simple matter to subdivide manufacturing facilities and storage facilities, apartments rank fourth rather than third.

NEW YORK CITY ADOPTS LATEST EDITION OF NATIONAL ELECTRICAL CODE®

NEW YORK CITY has adopted the 2002 edition of NFPA 70, National Electrical Code® (NEC®), with localized amendments, to serve as its electrical code. By adopting the latest edition of the NEC, city leaders support safety efforts that protect against hazards associated with electricity.

The NEC is adopted by jurisdictions in all 50 U.S. states and is considered a foundation of electrical safety around the world.

In the future, New York’s Department of Buildings will use the most current version of the NEC to submit proposed amendments to the city’s electrical code.
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**High winds spread fire to building and vehicles**

ARIZONA—A cigarette discarded by a passing motorist is believed to have ignited the contents of a display tent in front of a furniture store. High winds fanned the flames, which consumed the tent before they spread to vehicles parked nearby and to the store.

The two-story, wood-framed building, which measured 300 feet (91 meters) by 100 feet (30 meters), had concrete-block walls covered with stucco. Its roof was made of plywood over wooden trusses covered by rolled asphalt. The structure had a fire detection system, but there were no sprinklers.

Store employees discovered the cardboard boxes burning in the tent and tried to extinguish the fire with a garden hose and a portable extinguisher. However, a steady wind of 35 miles per hour (56 kilometers per hour), gusting up to 45 miles per hour (72 kilometers per hour), fanned the flames, and the fire quickly spread to the store. When the employees found they couldn’t extinguish the blaze, they called the fire department at 11:50 a.m.

Arriving firefighters fought the fire defensively, as flames consumed the two-story building and 13 vehicles, including a tractor-trailer, parked around the tent. The building, valued at an estimated $2.8 million, and its contents, valued at $1.5 million, were destroyed. Loss estimates for the vehicles were not reported. Three firefighters suffered minor injuries during suppression efforts.

**MANUFACTURING**

**Fire spreads in sawdust collection system**

CALIFORNIA—Fire sprinklers controlled two back-to-back fires at a wooden door manufacturing company, the first of which began when sparks from a saw ignited the sawdust in a dust collection system.

The one-story, wood-framed building was 500 feet (152 meters) long and 300 feet (91 meters) wide and was protected by smoke and heat detection systems. A wet-pipe fire sprinkler system had also been installed.

Firefighters were first called to the scene at 10:38 a.m. when the automatic fire alarm activated. They were met by employees, who reported a fire in the ductwork. By that time, a single fire sprinkler had operated and controlled the fire. Firefighters opened the dust collection system, removed the sawdust, and extinguished the remains of the fire.

The company’s management was instructed to call the fire department before the plant resumed operations, but plant personnel started the system three hours later without notifying firefighters. When they did so, an ember drawn into the hopper again ignited the sawdust, and three more fire sprinklers activated.

The fire department returned to the scene, where firefighters encountered heavy smoke and again found fire in the ductwork.
This time, smoke coming from the exhaust duct was also being sucked back into the building's ventilation system. Firefighters extinguished the blaze, which the three fire sprinklers had controlled.

There was no structural damage to the building, which had an estimated value of $10 million, but losses to its contents, valued at $20 million, were estimated at $200,000.

**Pump ignites resin**
MISSOURI—A fire that began in the production area of a fiberglass manufacturing plant quickly spread to products stored in the building, destroying the plant and damaging a connecting building. However, the fire department was able to stop the fire before it spread to a large resin storage tank outside.

The single-story, metal-framed plant also had a metal roof and walls. A breezeway connected this building, which measured about 150 by 50 feet (46 by 15 meters), to the other, larger building. The plant had no fire sprinkler or fire detection systems.

Employees were investigating a malfunctioning resin pump when the flammable resin ignited, and quickly called the fire department. The fire spread so quickly they were unable to use the portable fire extinguishers nearby. Arriving fire crews called for additional resources when the spreading fire prevented them from making an interior attack. They positioned hose lines between the two buildings to protect the second structure and the resin tank.

The fire destroyed the building of origin, and heat and smoke damaged the other building. An employee was burned, and four firefighters suffered minor injuries. Property damage is estimated at $2 million.

**Overheated lubricant starts fire**
MISSOURI—Firefighters arriving at a three-story wire manufacturing building three minutes after receiving an alarm to find flames shooting from the roof had difficulty ventilating the building because renovations had eliminated some windows. Investigators determined that the cause of the fire was a malfunctioning heating coil used to heat lubricating oil in a wire-stranding machine.

The steel-and-wood-framed structure had concrete walls and a flat roof covered with tar and gravel. There was no fire detection or suppression system.

At about 9 p.m., an employee arriving for work saw smoke coming from the building and found the interior filled with thick black smoke. He called the fire department, and firefighters arrived four minutes later to find flames coming from the roof. Heavy smoke and heat had built up inside the structure, making it difficult for interior crews to reach the seat of the fire.

Investigators spoke with employees, who said they turned on a heater that warmed lubricating fluid for a wire-strand machine between 2:30 and 3 p.m. It appears that the unit malfunctioned and heated the fluid beyond its ignition temperature of 500°F (260°C).

Fire damage to the area of origin, the roof, and the manufacturing equipment was significant. Other areas of the plant and an adjoining building suffered moderate smoke damage. Property damage is estimated at at least $1.5 million.

**STORAGE**

**Fire in storage unit used as residence**

CALIFORNIA—A fire in a storage unit in which someone was living spread to other units, causing an estimated $900,000 worth of property damage.

The single-story building, which had a corrugated metal roof and walls, sat on a concrete slab and contained storage units for lease. No automatic detection or fire suppression systems were reported. At the time of the 2 a.m. fire, the property was closed for the evening, and a night watchman was on site.

Investigators determined the fire began in the unit that was being used as a dwelling, but they were unable to locate the ignition source. The unit contained a propane gas-fired heater, a barbecue, lamps, a gasoline-powered generator, and a refrigerator.

Five firefighters were injured by exposure to hazardous materials, and a sixth suffered from exhaustion. Damage to the building, valued at $300,000, and its contents, valued at $1.5 million, were estimated at $150,000 and $750,000, respectively.

**HEALTH CARE**

**Cigarettes ignite debris in void**

CONNECTICUT—Employees disposing of cigarette butts in a hole in the exterior brick wall of a nursing home unintentionally ignited construction debris and other cigarette butts that had been dumped in the wall void earlier. Smoke from the burning debris entered the building and activated the automatic fire detection system, calling firefighters to the scene at 7:39 p.m.

The wood-framed nursing home had a brick façade and an asphalt-shingle roof, and it was equipped with automatic fire detection and suppression systems connected to a municipal fire alarm system.

Staff responded to the alarm according to plan and awaited the
fire department, which arrived within a minute of the call.

Using forcible entry tools, firefighters opened a section of the wall and quickly extinguished the blaze. The fire was obstructed and was so small that the fire sprinklers did not operate.

No one was injured, and damage was estimated at less than $1,000.

RESIDENTIAL
Space heater ignites bedding
MARYLAND—A portable electric space heater placed too close to a mattress cover started a fire in a single-family home, causing significant property damage and injuring a 48-year-old man who tried to extinguish the blaze and a 70-year-old woman who tried to re-enter the house.

The two-story, wood-framed house had a brick veneer. Smoke alarms installed on the first and second floors operated. There were no fire sprinklers.

The man turned on the space heater near his bed during the early morning hours, only to awake some hours later with smoke filling his room. One of the occupants called 911 at 6 a.m., and the fire department arrived to find that the fire had spread from the man’s bedroom to the second-floor hallway, the staircase, and the first-floor ceiling.

Heat and smoke damaged the entire house, the value of which was estimated at $65,000. Property damage to the dwelling came to $27,500, while damage to its contents, valued at $30,000, came to $12,000. The types of the residents’ injuries weren’t reported.

Fire in multi-family home kills one
MISSOURI—A passerby is credited with alerting the five occupants of a three-family house to a fire in the building, allowing four to escape. A 23-year-old woman died of smoke inhalation despite firefighters’ attempts to rescue her.

The one-and-a-half-story wood-framed house had three apartments—one in the basement, a second on the first floor, and the third in the attic. The structure, which had an asphalt roof, was 30 feet (9 meters) long and 28 feet (8.5 meters) wide. The first-floor and basement units had smoke alarms, but the alarm on the first floor wasn’t operational.

A passerby discovered the fire and called 911 at 7:48 a.m. He then woke an occupant of the first-floor apartment, who managed to escape uninjured.

Firefighters responded within two minutes, noting a large column of black smoke as they approached the neighborhood. When they arrived on the scene, they saw fire coming from the rear of the house and heavy smoke filling it. Advancing a 2-inch hose line through the front door, fire crews found heavy fire in the middle of the house and in the kitchen. While one firefighter held back the flames with the hose line, another tried to search the two bedrooms, bathroom, and living room for the trapped occupant.

As the fire continued to intensify, the interior company, which couldn’t locate the woman, requested a second line. Several hose streams finally enabled them to knock down the fire and find the victim in a rear bedroom.

Investigators discovered that a gun cabinet had been placed on top of an electrical extension cord in a first-floor bedroom. The carpet ignited, and air from a nearby heating vent helped the fire spread to other combustibles. The lack of an operating smoke alarm on the first floor was also a factor in the fire.

The home, valued at $48,400, sustained losses estimated at $19,000. Damage to its contents, valued at $4,000, came to $2,000. There were no other injuries.

Propane torch used to thaw pipes ignites insulation
ALBERTA, CANADA—Maintenance workers using a propane torch to thaw a frozen drain pipe in the garage of an apartment building unintentionally ignited cellulose insulation in concealed ceiling spaces. Despite their efforts to control the fire with a dry-chemical fire extinguisher, the fire eventually destroyed the building.

The three-story, wood-framed structure contained 42 apartments, about half of which were occupied at the time of the fire. The lowest level of the building was an open-air parking garage, which had no fire detection or suppression equipment. The presence of automatic detection equipment on upper floors wasn’t reported.

After using the torch on a frozen drain pipe in the garage ceiling for about 20 minutes, the workers noticed smoke in the area and discovered a small fire, which they tried unsuccessfully to control with a fire extinguisher. The fire department was called at 11:04 a.m. and arrived to find the fire spreading in the concealed ceiling space above the garage.

Using piercing nozzles, firefighters tried to extinguish the fire for over an hour before the ceiling collapsed on them, trapping six men. Rescue crews pulled all the trapped firefighters from the rubble, but by then, the fire had spread to the building’s apartments.

The building, valued at $2.5 million, and its contents, valued at $1 million, were destroyed. Seven firefighters were injured—five when the ceiling collapsed and two during suppression.
Four die in house fire
WEST VIRGINIA—A family of four died in an early-morning fire that spread from the first-floor living room to the upper floors. By the time firefighters arrived, the house was engulfed in flames, and the fire was threatening the houses on either side.

The single-family, wood-framed home was two stories high with wood siding and a metal roof. It was 30 feet (9 meters) long and 42 feet (13 meters) wide. No smoke detection equipment was found, and there were no fire sprinklers.

A passerby discovered the fire, woke the neighbors, and tried to get the occupants out of the house. The fire department received the 911 call at 3:08 a.m. Arriving firefighters established a water supply and used two 1 3/4-inch hose lines to protect the exposures. A second engine company also established a water supply and advanced additional hose lines to back up the first responders. They tried to enter the house, but heavy fire drove them out, and the incident commander ordered a defensive approach.

Investigators determined that the fire began in the living-room couch, but they couldn't determine what started it.

A man and a woman, both 44, and two boys, ages 14 and 11, succumbed to smoke inhalation. The house, valued at $40,000, and its contents, valued at $15,000, were destroyed.

Security bars trap family
NEVADA—One person died and four others were injured after an early-morning fire blocked their primary escape route. Security bars on all the windows and doors prevented them from using the home's other exits.

The one-story, single-family, wood-framed house was unsprinklered, and fire investigators could find no evidence of smoke alarms.

An occupant reported the fire at 6:26 a.m., and firefighters could see smoke coming from the house as they approached. They also noted several people trying to pull the security bars from a bedroom window to rescue the trapped residents. After forcing the bars off the front door, a truck company crew entered the burning house, while an engine company crew advanced a single 1 3/4-inch hose line inside to fight the blaze and search for occupants.

Firefighters removed the victims through the windows and treated them on the scene. A 53-year-old woman died of smoke inhalation, and four others, including two women, ages 47 and 38, and a 14-year-old boy and a 7-year-old girl, suffered smoke inhalation injuries.

Investigators determined that the fire started at the kitchen stove and spread to the dining and family rooms. Occupants told firefighters that they "tried to get out the windows, but the bars would not open." It wasn't reported whether the bars were equipped with safety release mechanisms.

Property damage was estimated at $100,000.

SPECIAL PROPERTY
Propane heater starts fire
NEW YORK—A woman woken by noises outside her window found the building next door on fire and called 911 at 4:15 a.m. The structure was undergoing extensive renovations, which were nearly complete when the fire destroyed it.

The two-story, wood-framed building, which measured 200 feet (61 meters) by 150 feet (46 meters), was to be a group residence for adults. The installation of the fire detection and sprinkler systems hadn't been completed.

Firefighters arriving on the scene found fire on all floors, from basement to roof, and the incident commander called in mutual aid from seven other fire departments to help extinguish the blaze.

Investigators determined that the fire started in the basement hallway near the kitchen when a propane heater set up to dry recently installed tile ignited the hallway walls. The heater had been placed too close to the walls.

The building, valued at $7 million, was a total loss. One firefighter suffered smoke inhalation.
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In 2004, seminar topics also include automatic sprinkler systems, the Life Safety Code for healthcare occupancies, Flammable Liquids Code, Certified Fire Protection Specialist Primer, National Fire Alarm Code, electrical safety in the workplace, electrical standard for industrial machinery, hazardous/classified locations, and low-voltage wiring.

NFPA will offer seminars in Atlantic City, New Jersey, on March 22 to 26; Nashville, Tennessee, on April 19 to 23; and Farmington, Connecticut, on April 26 to 30. If these three dates or locations don't meet your needs, we have 20 additional dates and locations throughout the remainder of 2004 you may choose from, or we can bring a program directly to your facility through our on-site seminar program. You'll find a complete conference schedule in the professional development section of the NFPA Web site at www.nfpalearn.org. For more information on how to bring a seminar directly to your facility, contact the on-site seminar department toll-free at (877) 336-3280.

To register for the seminar program that best meets your career goals, phone us toll-free at (800) 344-3555, Monday through Friday from 8:30 a.m. to 8:00 p.m. EST. Outside the United States and Canada, dial (617) 770-3000. You can also register at www.nfpalearn.org or fax us at (800) 593-NFPA. Outside the United States and Canada, fax us at (508) 895-8301. Or mail your request to NFPA Customer Sales, 11 Tracy Drive, Avon, MA 02322.

Registration forms for fax or mail may be found in our 2004 catalogs offering training and professional development information or downloaded from www.nfpalearn.org. World Safety Conference and Exposition™

With more than 100 education sessions to choose from at the World Safety Conference and Exposition (WSCE), the task of finding the sessions that are right for you can be daunting. To help you in this task, NFPA has introduced its online Education Session Tracker, which allows you to search all the WSCE education sessions. You will find this useful scheduling tool by logging onto www.nfpa.org/meetings and following the links for the WSCE. Use this tool to retrieve education sessions by date, NFPA section sponsor, or track.

Helpful drop-down menus make finding what you want simple. After retrieving the desired sessions, you may then view detailed topic descriptions and the speakers. The Education Session Tracker allows you to build your own personal conference itinerary, and save it or print it out. Please remember that the final schedule is subject to change, so you should check your on-site program for exact room locations and any updated information.

When building your itinerary, make sure you include the Opening General Session on Sunday, May 23. Bill Bradley, former U.S. senator and professional basketball player, will be the keynote speaker. As one of the nation's best-respected politicians, Bradley offers an inside perspective on the state of American politics, foreign and domestic policy, the economy, and the ever-accelerating rate of change in technology and business.

With more than 8,000 participants expected to attend this year's WSCE, you will want to make your

>>CONTINUED ON PAGE 95
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The three films that comprise the Matrix trilogy are set in a bleak future, in which machines have taken control of what's left of the planet. What humans believe to be reality is an artificial construct managed by computers.

The Wachowsky brothers, makers of the films, have now designed a video game entitled “Enter the Matrix,” based on the movies. If you can get past the irony that video games are themselves computer-generated artificial constructs, you'll appreciate that the fire protection systems depicted in video games can be even further removed from reality than those systems in television shows and movies. In other words, fire sprinklers have entered the Matrix, leaving behind all hope of an accurate portrayal.

Fire protection system

The fire sprinklers appear in the game's “Unexpected Arrival,” the fourth level of “The Post Office” scenario. The female character Niobe must fight her way past inept post office security guards to reach a freight elevator, which takes her up a floor and opens at the end of a long, narrow warehouse. Wooden crates are stored three or four high in a single-row rack along the left side of the room, while more crates are randomly piled one or two high along the right wall. The narrow shape of the warehouse apparently allows protection by a single row of pendant sprinklers mounted along the bottom of a main that runs along the center of the ceiling and is fed from risers at both ends. The individual sprinkler deflectors are clearly visible.

Presumably because Niobe is an “unexpected arrival,” her presence quickly leads to a problem, when an unattended forklift smashes into piping along the end wall, resulting in a fiery explosion. The fireball settles into a steady-state fire burning from the ruptured piping, but not before it has activated about a half-dozen sprinklers.

Problems develop

To the extent that the video game depicts multiple sprinklers responding to the tremendous heat of the initial fireball, all seems well within the Matrix. But there are more problems to come. First, the sprinklers that initially activate apparently lose either interest or their water supply, since the flow stops after a minute or so. Mysteriously, sprinklers in an adjacent area of the warehouse then begin to flow. Worse, a closer examination of the ruptured piping supporting the steady-state fire reveals that it is the riser serving the overhead sprinkler main.

Maybe it isn't water? But what substance is this that can be both the fire problem and its solution? Movies and television programs have long used fire sprinklers as a plot device, often sacrificing the reality of how sprinklers work in favor of the needs of the script. Video games have now followed their lead in awareness of sprinkler systems, but the alternate reality they offer is tied even less to real-world sprinkler performance.

Russ Fleming is the executive vice-president of the National Fire Sprinkler Association.
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Big-box stores rely on fire sprinkler protection

Because the open areas of big-box retail stores often have a heavy fire load, a high volume of water is needed to extinguish fires in such occupancies once they extend beyond their point of origin. Furthermore, employees and customers unfamiliar with a building’s egress paths, fire safety systems, and exits frequent such stores. These two factors combined require fire departments to develop standard operating procedures (SOPs) and pre-incident plans for all large mercantile occupancies in their jurisdictions.

Understanding how buildings react under fire conditions is essential to conducting a proper risk analysis, which should be performed before firefighters are committed to attack positions at any fire. Analyzing structural stability is doubly important in buildings with large, open areas.

Unlike older, multi-story department stores, which were often built using heavy-duty fire-resistant construction, today’s one-story big-box stores are of lightweight, non-combustible construction with metal truss roofs. While some in the fire service confuse non-combustible and fire-resistant construction, there’s a difference. Fire-resistant construction will probably remain stable under intense fire conditions for a reasonable time. When collapse is imminent, there are warning signs. Non-combustible construction may collapse without warning.

Fire sprinkler systems, which have an exceptional record in protecting buildings, contents, and occupants, are required in big-box retail stores. However, sprinklers aren’t always 100 percent effective, particularly under certain circumstances.

If a fire load beyond the design capacity of a building’s sprinkler system is brought into the building, for example, the system will no longer be able to provide adequate protection. If a sprinkler valve is left in the “off” position after service or the fire department prematurely shuts the system down after a fire, problems will also arise. Even sabotage is a possibility. Finally, the system itself may be flawed. In recent years, some hydraulically engineered sprinkler systems designed to provide content-specific protection were found to be defective.

When preparing pre-incident plans, therefore, it’s important to complete a comprehensive evaluation of the building’s construction features under ideal conditions. Pre-incident plans should include drawings showing the location of fire sprinkler valves and intakes, fire pumps, any other part of the system firefighters can control. SOPs for buildings with fire protection systems should include supplying the fire sprinkler and standpipe intakes, and checking fire pumps and fire sprinkler valves. Opening a valve, starting a fire pump, or supplying additional water to the system will resolve most problems that result in sprinkler system failures.

When planning, the fire officer should identify buildings that would be especially hazardous to firefighters if the fire sprinkler system were inoperative, as well as the tactical options firefighters have when the fire sprinkler system is malfunctioning. Should they mount an offensive interior attack on a working fire when the fire sprinklers are out of service? Should they allow the business to remain open to the public? How should they deal with the truss construction?

Codes make escape-time allowances for sprinklered buildings in terms of occupant load, travel distance to exits, number of exits, and other life safety features. So when the fire sprinkler system is out of service and fire department efforts to support it are ineffective, firefighters need to know what to do. These contingency plans must be included in the pre-incident plan.

NFPA 1620, Pre-Incident Planning, serves as an excellent guide. Following these procedures could mean the difference between a minor fire and a total loss.

This column is adapted from the book Structural Fire Fighting, available at www.nfpa.org or (800) 344-3555.
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If you hold the Certified Fire Protection Specialist (CFPS) credential, you are one of more than 1,100 individuals who have earned this designation. The number continues to grow by about 10 percent each year.

How many people take the examination?
Every year, 200 to 300 individuals take the three-hour, open-book CFPS examination. In the last five years, the percentage of those passing the exam has ranged from 49 to 73 percent, with an average five-year pass rate of about 64 percent. The passing grade is a 70.

The exam consists of 100 questions and is based on the 19th edition of the NFPA Fire Protection Handbook (FPH). If you haven’t visited the CFPS Web site at www.nfpa.org/certification recently, please do so. It’s packed with useful information, such as sample questions and an outline of the exam’s contents describing the number of questions in each subject area. The Web site also describes the recently updated comprehensive study guide, which is available for purchase.

Can I take the exam on my computer?
The CFPS examination has been offered in a computer-based test (CBT) format, as well as the traditional paper-and-pencil format, since 2002. That year, 23 percent of the test takers used their computers. In 2003, that number rose to 44 percent. CBT allows candidates to take the examination when they want to, during normal business hours at more than 120 national testing centers.

How can I prepare for the exam?
Many candidates prepare by taking the CFPS primer course offered through NFPA’s Professional Development Division. The primer doesn’t teach to the examination. Instead, instructors use the exam content outline to provide information about the 19th edition of the FPH and teach candidates how to find answers in it quickly. Since the exam is timed and the FPH contains 3,000 pages of fire protection data, it’s very important that candidates understand how the book is organized.

Information about the course can be found at www.nfpalearn.org.

What is the educational and work experience of those who take the exam?
As a group, CFPS certificate holders are well educated. About 19 percent have an associate’s degree, 49 percent have a bachelor’s degree, and 15 percent have a master’s degree.

About 45 percent of certificate holders have fewer than six years of related work experience when they apply. More than 19 percent have more than 20 years of work experience, and another 14 percent have between 11 and 15 years.

Twenty-six percent of CFPS certificate holders work in the insurance industry, 21 percent are consultants, 20 percent work for municipalities, and 16 percent are employed in the manufacturing sector. Thirty-eight percent are fire service personnel, 22 percent are loss control engineers, and 21 percent are design engineers.

What about recertification?
Recertification is an important part of any certification program because it ensures that certificate holders remain current in their professions. Every three years, CFPS certificate holders submit evidence of their attendance at fire protection and safety training seminars and conferences for recertification points.

The CFPS Board adopted an audit process in 2002 to make it easier for certificate holders to be recertified. One hundred certificate holders due for recertification are randomly selected and required to submit full documentation of their recertification points. Others due for recertification merely submit a signed summary sheet as proof. This system has worked extremely well.

Each year, more than 90 percent of the CFPS certificate holders renew their credential.

Where can I get more information?
The Web site is always available, easy to use, and rich with information. Recently, the certification home page has averaged more than 750 visits per week.

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Installing fire sprinklers in residential occupancies

According to NFPA's 2002 U.S. Fire Loss report, of the 2002 structure fires, 401,000 were residential fires, accounting for 77.3 percent of all structure fires, virtually no change from 2001. Of the residential fires 300,500 occurred in one-and two-family dwellings, accounting for 57.9 percent of all structure fires. Another 88,500 occurred in apartments accounting for 17.0 percent of all structure fires.

In addition, an estimated 2,695 civilians died in residential fires in 2002, a decrease of 14.2 percent. Of these deaths, 390 occurred in apartment fires, a decrease of 14 percent. Another 2,280 civilians died in one- and two-family dwellings, a decrease of 14 percent. This is 370 less than in 2001 and the lowest figure since NFPA changed its survey methodology in 1977.

Most of the decrease is due to a 25 percent drop in the death rate for communities that protect communities of 10,000 to 24,999, and a 45 percent drop in the death rate for departments that protect the smallest communities (populations of less than 2,500).

The report also states that "though encouraged by this drop in 2002, we must be cautious because death rates can vary considerably from year to year, particularly for smaller communities."

Installing home sprinklers

The installation of smoke detectors in homes and the increase in public education programs certainly has had a large impact. However, there is one area we have not approached seriously: sprinklers in one- and two-family dwellings.

The requirement to install sprinklers in all new one- and two-family dwellings has been proposed for NFPA 101®, Life Safety Code® before and has even passed on the floor vote at the Technical Session. However, it has not been placed in the code. The Technical Committee on Residential Occupancies recently approved a new code provision at its Report on Proposals (ROP) meeting to require sprinklers in all new residential occupancies. This proposal is for the NFPA 101 and NFPA 5000™, Building Construction and Safety Code®.

This will now be letter balloted by the committee. If it passes the committee vote, it will be published with the Report on Comments (ROC) and will be available for comment.

There's also a bill before Congress (HR 1824) known as the Fire Sprinkler Incentive Act. Representative Curt Weldon of Pennsylvania introduced this bill with 106 co-sponsors. The corresponding Senate bill is S 1566.

Bill would amend IRS code

This bill will amend the Internal Revenue Code to provide a tax incentive for the installation of sprinklers. Presently, it takes 27 years to depreciate residential sprinklers and 39 years to depreciate sprinklers installed in commercial property. This bill will allow the cost of installing sprinklers to be amortized over five years. The House Bill is presently in the House Ways and Means Committee and the Senate version is in the Senate Finance Committee.

It's true that many fires occur in older dwellings and commercial buildings. However, what structures are built now will become older structures and the problem will just get bigger unless we act now. Change is often uncomfortable and it is easy to stay with the status quo. The requirements for residential smoke alarms caused some concern when it was mandated years ago, but look at the benefit today in the reduction of fire deaths.

We now have an opportunity to voice our concerns and make a significant improvement in fire safety that can directly affect lives and property needlessly lost by fire. As professionals, it is our responsibility to review these important changes to codes and tax laws and act.
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* Depending on size and type of building.

In a fire emergency, a two-story building can be just as frightening as a skyscraper.
THE CONSUMER PRODUCT SAFETY COMMISSION (CPSC) is starting to feel the heat on fire safety standards for upholstered furniture, bedding, mattresses, and candles. The Senate Commerce Committee will apply the pressure when it holds hearings this winter on the American Home Fire Safety Act (S.1798), which mandates first-time federal fire safety standards for those four product categories.

David Strickland, an aide to Senator Fritz Hollings (D-SC), the ranking Democrat on the committee and chief sponsor of S.1798, says staff for Senator John McCain (R-AZ), chair of the committee and of the Congressional Fire Services Caucus, has tentatively agreed to hold a hearing. It’s not clear whether the senators want to impose their tougher standards on the CPSC or are using the Hollings bill to speed up the finalization of somewhat milder CPSC standards that are being developed for upholstered furniture and mattresses.

The CPSC has issued advanced notices of proposed rulemaking (ANPR), the first of three steps in the rulemaking process, for both these products. Ken Giles, a CPSC spokesman, says that the mattress standard could be finalized in 2004, but he declined to cite a possible date for completion of the upholstered furniture standard. However, that standard would be issued after the mattress standard. The CPSC has nothing in the works on candles or bedding.

"Despite overwhelming evidence that new standards would save lives, the commission has been slow to address this issue," Hollings says. "There are some who ask for more time for the commission to work on this issue. More than 20 years have passed since the Commission has addressed product fire safety. There is no more time to waste."

Strickland adds that if the CPSC issues a final standard for either mattresses or furniture that is vigorous enough before Hollings’ bill is passed by Congress, CPSC would "take that product category out of our bill."

Moving quickly may be difficult for the CPSC, which first considered, then rejected, fire safety standards for upholstered furniture when Jimmy Carter was president. In 1994, the CPSC accepted a petition from the National Association of State Fire Marshals (NASFM) asking for a national standard for upholstered furniture exposed to small open flames from candles, lighters, and matches. There was, and is, a voluntary national standard for furniture exposed to cigarettes, published by the Upholstered Furniture Action Council in 1977 and amended six years later.

With the Hollings bill in the offing, the CPSC finally decided to take action on the NASFM petition, announcing in November 2003 that it was publishing an ANPR. The standard would include performance-based fire-resistance tests for seating areas and dust covers exposed to both small open flames and cigarettes. The CPSC basically intends to adopt the UFAC voluntary standard on cigarettes as a national standard.

However, the NASFM, two industry groups, and Underwriters Laboratories have criticized that ANPR because it does not include standards for foam cushions.

The Hollings bill would turn the soon-to-be-updated version of Technical Bulletin (TB) 117, published by the California Bureau of Home Furnishings and Thermal Insulation, into a national standard. TB 117 is currently a de facto national standard, and proposed revisions address such issues as the role polyurethane foam can play in the spread of fire, a factor that allegedly played a role in the fire at The Station nightclub in Rhode Island in February 2003. TB 117 will require that foam pass a test consisting of a 20-second exposure to a gas flame in the crevice of a seat-back furniture mockup.

The Hollings bill would also use California standards for mattress flammability as national standards. TB 603, which went into effect this year, requires that mattresses produce a peak heat release rate of no more than 150 kilowatts (kW) for 60 minutes and...
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Integrating fire alarm and fire protection systems

Neither NFPA 72®, National Fire Alarm Code®, nor NFPA 13, Installation of Sprinkler Systems, requires the installation of fire alarm or automatic sprinkler systems in a building. That's the province of state or local requirements and of building codes, such as NFPA 5000®, Building Construction and Safety Code®, which requires installing a manual or automatic fire alarm system in most occupancies.

Most of the building codes, including NFPA 5000, require some form of manual or automatic fire alarm system be installed in most occupancies. NFPA 5000 also allows building owners to request the installation of automatic sprinkler systems, hood extinguishing systems, or special hazard protection systems as an addition to the building’s fire protection.

When NFPA 5000 requires an automatic sprinkler system, it may also require that the system be supervised through a connection to a fire alarm system to electrically monitor the sprinklers' integrity. Supervision includes monitoring the position of sprinkler system control valves, fire pump power supplies and running conditions, water tank levels and temperatures, tank pressure, dry-pipe valve air pressure, and pre-action system supervisory pressure.

NFPA 72 also requires that the fire alarm system provide an audible and visible supervisory signal at an attended location in the protected building to indicate a condition that would keep the sprinkler system from operating satisfactorily. Where NFPA 5000 requires a supervised automatic sprinkler system, waterflow alarms must also transmit a signal to an approved proprietary alarm-receiving facility, a remote supervising station, a central station, or the fire department. The installation of these off-premises connections must meet the applicable requirements of both the appropriate building code and NFPA 72.

Enforcers often overlook requirements pertaining to the interface of fire alarm and automatic sprinklers.

Requirements include limiting the numbers of waterflow and supervisory devices to initiating device circuits. No more than five waterflow switches can be connected to a single initiating device circuit, and no more than 20 supervisory devices can be connected to a single supervisory initiating device circuit. In addition, an automatic fire suppression system must trigger an alarm signal at a protected premises' fire alarm control unit when it operates, and the fire alarm system must monitor the integrity of each fire suppression system actuating device and its interconnecting circuit.

The fire alarm system must also monitor sprinkler systems, other fire suppression systems, and other life- and property-protection systems for supervisory signals indicating an off-normal condition that could adversely affect the performance of the system. With the exception of conditions related to water mains, tanks, cisterns, reservoirs, and other water supplies controlled by a municipality or public utility, the conditions essential for the operation of sprinkler and other fire suppression systems must be monitored. And signals must distinctively indicate the function of the system that has become off-normal, such as valve position, temperature, or pressure, and must indicate when it’s been restored to normal.

This last requirement means that the waterflow switch and valve supervisory switch may not share the same initiating device circuit (IDC). When a conventional IDC is used, a separate circuit typically serves the waterflow alarm initiating device, and a separate supervisory IDC serves the valve supervisory devices. If a circuit’s design allows it to distinguish among alarm signals, supervisory signals, and trouble conditions caused by a disarrangement of the circuit, the circuit can serve both alarm and supervisory initiating devices.

The goal of codes and standards is to ensure that important building and life safety systems work when needed and notify occupants and first responders early enough to control the situation.
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Five NFPA documents for Homeland Security

On February 26, 2004, the U.S. Department of Homeland Security (DHS) adopted five NFPA standards for personal protective equipment to help state and local procurement officials select the best available protective equipment for first responders. The standards, the first of their kind that DHS has adopted, will protect first responders against chemical, biological, and other hazards at emergency incidents and provide manufacturers with design, performance, testing, and certification requirements for the equipment.


DHS also adopted three National Institute of Occupational Safety and Health (NIOSH) standards for respirators to protect first responders in chemical/biological/radiological/nuclear environments.

At a Washington, D.C., press conference announcing the adoption of standards, NFPA President James M. Shannon said, “NFPA began work on many protective clothing and equipment standards for first responders long before the attacks on our nation. More must be done to provide adequate protection for our first responders. The steps taken today by DHS go a long way in ensuring that will happen.”

NFPA 1951 answers the need for personal protective equipment for fire and emergency services personnel operating at technical rescue incidents.

NFPA 1981 specifies the minimum requirements for the design, performance, testing, and certification of open-circuit self-contained breathing apparatus and combination open-circuit self-contained breathing apparatus and supplied air respirators for the respiratory protection of fire and emergency responders where unknown, IDLH (immediately dangerous to life and health), or potentially IDLH atmospheres exist.

NFPA 1991 specifies the minimum requirements for the design, performance, testing, and certification of vapor-protective ensembles and individual protective elements for chemical vapor protection for fire and emergency service personnel.

Additional optional criteria are provided for ensembles and individual protective elements that provide protection for chemical flash fire escape, liquefied gas, chemical and biological warfare agents, and chemical and biological terrorism incidents.

NFPA 1994 specifies the minimum requirements for the design, performance, testing, and certification of protective ensembles for fire and emergency services personnel operating at domestic terrorism incidents involving dual-use industrial chemicals, chemical terrorism agents, or biological terrorism agents.

NFPA 1999 specifies the minimum requirements for the design, performance, testing, and certification of new single-use and multiple-use emergency medical protective clothing used by fire and emergency services personnel performing patient care during emergency medical operations for protection against exposure to blood and body fluid-borne pathogens.
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A better nfpa.org and online catalog

Two years ago, when NFPA launched its improved, multi-functional Web site, www.nfpa.org, one of the main goals was to make the process of buying NFPA products from its online catalog easier. After signing in, customers could search the products, make a quick purchase using the item number from the print catalog, and sign up for seminars. However, recent usability tests revealed that some flaws with the site caused some users to abandon online shopping at NFPA.

To remedy this situation, NFPA invited 12 customers to its Quincy, Massachusetts, headquarters for two days last July to see how they actually used the online catalog. During one-on-one sessions, a moderator assigned each customer tasks to complete using the site. Some tasks were open-ended, while others were very specific. NFPA staff sat in the next room watching the customers’ actions on a computer monitor, and what they saw has led to numerous revisions of the online catalog.

Most of the customers had problems with the assigned tasks. The “Quick Shop” feature, originally meant to expedite purchases by allowing the customer to key in the catalog item number, was practically invisible to the users and, thus, unused.

When the moderator asked customers to search for a product, the users didn’t realize that the search resulted in multiple pages of items. If they didn’t see what they were looking for on page one, they left the site, thinking that the choices on that page were all the choices there were. Other sources of confusion were the inconsistent use of color and the two-step process customers had to go through to change the quantity of items in their shopping carts.

All of these things have changed. “Quick Shop” is now called “Quick Order,” and the feature is more prominent, as are its product categories. Customers can now see that more than one page of items is available because the function “page x of x” is bigger and more centralized. New design standards were created to address the color issue, and banner promotions have been developed to highlight new or top-selling products. And the two-step quantity change procedure has become a one-step process: just change the number and hit “enter.”

In addition, the online seminar registration process has been simplified, and we’ve boosted the site’s professional development content.

Other areas
The online catalog isn’t the only part of the Web site to get a facelift. NFPA staff also revamped the codes and standards section to benefit technical committee members. Each technical committee has its own password-protected Web site that contains information specific to that committee’s work, including meeting schedules and minutes, the text of the committee’s documents, committee work, and contact information for committee members.

By posting this information online, NFPA increases the committee’s efficiency. Additional improvements planned for the near future should also increase the efficiency of the NFPA code-development process. Specifically, we’re revamping the system used to submit comments and proposals online, and committee members will soon be able to submit their ballots online, too.

The rest of the Web site has also been upgraded to enhance usability and increase quality. The site now has “Resource Pages” that give users all sorts of information related to a single topic, including statistics, excerpts from books, NFPA Journal articles, and related products. In addition, online visitors have free read-only access to select NFPA documents.

Behind the scenes, we’re choosing a new context-management system that will automatically update the site’s content, keeping www.nfpa.org as current as possible.

NFPA staff is always working to improve www.nfpa.org and to make your NFPA-related online work more efficient. So if you haven’t visited the site in a while, stop by to check out the recent improvements.
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LOW LIGHTS AND a candle’s flicker make my home warm and inviting, a place where I feel relaxed and secure. And I’m not alone. The National Candle Association reports that candles are used in 7 out of 10 households in the United States. Being a safety nerd, however, I’m careful with candle placement, and I never leave them unattended.

Unfortunately, many people aren’t as vigilant. According to NFPA’s 2003 report “Candle Fires in U.S. Homes and Other Occupancies,” home candle fires jumped 20 percent from 1998 to 1999, hitting a 20-year high of 15,040 fires, 102 civilian deaths, 1,473 civilian injuries, and an estimated $278 million in direct property damage.

What are we doing wrong?

For one thing, we’re leaving candles burning unattended. Thirty-eight percent of all home candle fires in 1999 occurred when candles were left unattended, were abandoned, or were inadequately controlled. Another 23 percent occurred when some form of combustible material was placed too close to the candle, and 8 percent were started by people—usually children—who were playing with the candle.

Until 1999, when ASTM International (formerly the American Society for Testing and Materials) issued its first candle-related standard, there were no standards governing the manufacture, labeling, or products used in or with candles. Since then, standards requiring cautionary labeling on home candles and glass candle containers have also been published, and ASTM issued “Provisional Specification for Fire Safety for Candles” in 2003 to address issues such as flame height, secondary ignition, stability, and the end of a candle’s useful life.

Education is vital

On the individual level, education, rather than standards, is the key to reducing the incidence of candle fire in the home. Too often, people seem to forget that a candle is an open flame. It may not burn evenly, particularly in drafts, and it can easily ignite nearby combustibles. And when something goes wrong with a candle, it can happen very fast.

Here are some fire safety tips to keep in mind when using candles in the home:

- Extinguish all candles when leaving the room or going to bed.
- Keep candles in a circle of safety. That means they should be at least 1 foot (0.3 meters) away from anything that can ignite, such as clothing, bedding, paper, and curtains.
- Place candles on a stable piece of furniture in sturdy holders that won’t tip over. Candles should fit into the holders securely, and holders should be made of materials that won’t burn.
- Don’t allow children or teens to have candles in their bedrooms.
- Don’t use candles anywhere children or pets can knock them over.
- Keep candles up high, out of the reach of children.
- Never leave a child alone in a room with a candle. Children shouldn’t sleep in rooms with lit candles.
- Keep all matches and lighters up high, out of a child’s sight and reach, preferably in a locked cabinet.
- If needed, use flashlights instead of candles for light.
- Encourage any college students you know to use candles safely.

“Smart” candles

Someday, we may have a “smart” candle that will extinguish itself when left unattended or placed too close to combustibles. Until then, let’s advocate for safe candle use. We can make a difference by changing the behavior of one person at a time.

For more information on NFPA’s 2003 report “Candle Fires in U.S. Homes and Other Occupancies,” go to www.nfpa.org/Research/OneStopDataShop/OneStopDataShop.asp.

JUDY COMOLETTI is assistant vice-president for public education at NFPA.
We are now accepting proposals for educational presentations at NFPA's 2004 Fall Education Conference. We invite you to share your experience and expertise with your peers in the field of fire and life safety as a presenter in Miami Beach, Florida, November 13-17, 2004. The Fall Education Conference features in-depth, CEU accredited training sessions in 2- and 4-hour classroom settings. Please complete this form in full and return, via mail, email, or fax to NFPA by March 26, 2004. All presentation proposals will be reviewed by the Sessions Committee and selections will be made based on quality, relevance, focus, practical application, timeliness and on the presenter's experience and credentials.

IMPORTANT: A handout will be required 4 weeks in advance of the conference. NFPA does not pay for travel expenses, but speakers will receive a complimentary conference registration.

**Presentation Submission Form** (Please type or print clearly.)

Title of presentation: __________________________

Description of presentation (50 words or less):

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Presentation length: □ 2 hours □ 4 hours □ Other __________________________

To be considered, a resume and short description of the presenter's and any co-presenter's credentials must be attached.

**Learning Objectives** (required for accreditation):

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If you plan on someone presenting this topic with you, please complete the information below. Use additional pages if necessary.

**Co-presenter Information:**

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**Deadline for submission is March 26, 2004**
By Latayne C. Scott

Robots to the rescue!

Innovation, say developers, is the key to robots meeting the challenges life safety often presents.

Illustrations by J.D. King
Imagine this scenario. An electrical fire ignites manufacturing materials in an urban assembly-line shop that produces wooden pallets. No one can say exactly how many workers may be trapped inside. To make things worse, the used-tire store next door becomes involved when an adjoining wall collapses. Then a 911 caller reports that a bomb caused the fire.

The city’s fire department dispatches a swarm of robots. The first to arrive gets up close to survey the situation. It can withstand temperatures as high as 1,472°F (800°C) and has a roof-mounted camera array that sends pictures to a control room 295 feet (90 meters) away, pictures that determine whether firefighters should risk their lives by entering the building. The second robot, a driverless truck, arrives to douse the fire with 26 gallons (100 liters) of water a second from 246 feet (75 meters) away and continues the surveillance with its three remote-controlled cameras. Next on the scene is an unmanned monitor-nozzle vehicle with another camera. It can discharge water and foam and remove obstacles, as well.

The fire is extinguished, but new challenges emerge. The city’s homeless population often shelters nearby in abandoned warehouses. Some of the plant workers can’t be found. The shop walls have collapsed in a heap of rubble. And if this fire really were caused by a bomb, are there others?

It’s at this point that the smaller robots go to work. A human-sized device climbs stairs, takes measurements, and carries tools on its telescopic arm. Others move aside the rubble. Then the little ones begin the search for survivors, hazardous materials, and bombs. One, guided by a simple joystick via a serial radio-frequency link, pokes around cautiously and relays information. Another, equipped with a 64-inch (1.6-meter) double-jointed arm, reaches over piles of smoking debris and sends back pictures. A third’s self-righting mobility platform sports flippers that help it climb stairs and mounds of rubble. Tiny insect-like “crawler” robots get into tight spots, then a marsupial-style robot hauls in her three “babies,” small units that can squeeze into crevices carrying heat sensors and communication devices. As “momma” watches, the 2.4-inch-high (6-centimeter-high) triplets scatter to do their jobs. They are called “shape-shifters” because they can flatten themselves, then, once in the open, rear up to look over what’s in their way.

Science fact: robots in service now

Sound like science fiction? Not quite. All these robots exist and have been used by, or in conjunction with, fire departments somewhere in the world. The only fiction, as any chief would tell you, is that any U.S. fire department could afford them all.

Take the first robot truck, for instance. In service for several years now at the United Kingdom’s West Yorkshire Fire Brigade, it can recover gas cylinders from the scene of a fire, locate and shut off gas valves in a blazing building, and cool chemical drums with its high-pressure jets of water.

The robot truck that shoots 4 tons (3.6 metric tons) of water and 1 ton (0.9 metric tons) of foam? You’ll find it at the fire department in Shenyang, Liaoning Province, China. Also driverless, it can start, stop, speed up, or slow down—all by remote control. Its long-range water cannons and option to use a driver make it very versatile. Its price: $181,000 U.S.

The Tokyo Fire Department, which has been developing firefighting robots for more than 30 years, followed its early tank-like, monitor-nozzle vehicle with smaller and larger devices that can squeeze into cramped areas and douse them with water, open doors and valves, walk up walls, and heft haz-mat drums.

“Theodor,” the human-sized robot working for a German BASF chemical plant’s fire department, can ride its track-like platform up stairs, pulling its own trailer behind, and perform tasks with a telescopic arm that can lift...
weights of up to 132 pounds (60 kilograms). According to its operators, Theodor can seal off leaks, detect explosives, and perform "active firefighting."

The other long-armed robot at our hypothetical fire has an arm over 5 feet (1.5 meters) long that grasps objects with pincers. The arm is removable, allowing the tracked, amphibious base unit to fit into a suitcase. And its high-resolution cameras not only transmit but also record onto a VCR for future viewing.

The smaller robots aren't science fiction, either. In fact, every one described, along with the long-armed robot, was used after September 11, 2001, to find and recover bodies at the site of the World Trade Center disaster. Despite their diminutive size, which has led to descriptions such as "back-packable" and "shoebox-size," they provided a range of services, including communication, light, audio, color and infrared camera input, global positioning, mapping and sonar, and biological and chemical detection. They and their operators found 10 bodies.

The shape-shifting marsupial robots hold the most promise for firefighting professionals and Urban Search and Rescue (USAR) workers, according to Dr. Robin Murphy, director of the Center for Robot-Assisted Search and Rescue (CRASAR) and professor at the University of South Florida in Tampa. Murphy describes her team of robot designers, builders, and handlers, who come from robot manufacturers, think tanks, and the U.S. Navy's robot lab at the Space and Naval Warfare Systems Command, as a "strike force" that continues its research work while predeploying regularly at such high-target events as the Super Bowl.

According to Murphy, the shape-shifting robots can insert sensors into rubble and position them to assess structural damage by collecting visual and seismic data.

They can also carry radio transmitters or even small amounts of food or medication to trapped survivors, guide jaws-of-life devices, and pinpoint the location of a person's limbs to keep rescue workers from injuring them during extraction. Their ability to crouch down and rear up in spaces of varying size makes them much more versatile than traditional robots.

The marsupial element allows a larger "mother" robot to protect littler ones in transport to a fire site, recharge them with batteries, provide off-board computation and physical guidance, and relay communications.

Dr. Howie Choset, associate professor of mechanical engineering and robotics at Carnegie Mellon University in Pittsburgh, Pennsylvania, believes that the most efficient robots under development for use by firefighters and rescue workers will be so-called snake robots. About the size and shape of a human arm, they can "thread through tightly-packed volumes, accessing locations that people and machine otherwise cannot," says Choset.

"Actually, they ride on a mobile robot that will carry the snake to the insertion point and go from there," he says. "They extend the reach of the rescue worker, and they do this in a minimally invasive fashion. They don't disturb the surrounding rubble, which is important when you have a fragile, collapsed structure."

Innovations

Not everyone's convinced that robots can be practical in firefighting, however. Captain Richard Bizzari anticipates that the robot that his unit at the Picatinny Arsenal Fire Department in New Jersey has on order will have limited use.

"Using it would be helpful with sensing chemical biohazards, for a first look," says Bizzari. "But I don't foresee a need for robots in firefighting at this time. I don't think it can do what a human being can do, actually."

Innovation, say developers, is the key to meeting that kind of challenge with the robots recently unveiled. Sandia National Laboratories, for instance, pioneered what it called "the smallest autonomous, untethered robot in the world." About the size of a pair of dice, the track-driven device is powered by watch batteries and contains microprocessors, a temperature sensor, and two small motors. It's expandable so it can carry miniature cameras, microphones, and chemical sensors.

Another robot, a hopping, grapefruit-sized unit, is driven by a propane-powered piston that allows it to jump as high as 20 feet (6 meters) into the air, roll over, right itself, and continue hopping for up to 5.5 miles (9 kilometers). Rescue personnel could conceivably toss the "hopper," which is equipped with a camera or sensors, into a third-story window where it could navigate over...
Rescue personnel could conceivably toss the "hopper," which is equipped with a camera or sensors, into a third-story window where it could navigate over obstacles, continually righting itself, until it could send back pictures of potential dangers.

The bigger robot manufacturers, such as BASF and iRobot, say they're looking into firefighting applications more actively since September 11. For example, Fire Department Equipment International, Inc., of Orlando, Florida, recently produced a robot prototype named "Foghat," for rapid deployment in residential fires. Foghat operates completely independently, its manufacturer says, to sense and suppress the fire. The company is also working on a bigger unit for warehouses and larger structures.

Toys for solutions

Murphy and a colleague began their robotics work in the late 1990s when they decided to create a two-year project for undergraduate engineering students to refurbish mobile robots used to fight fires in mines. The project was to be funded by the Bureau of Mines, but the money fell through when Congress decommissioned the agency. Instead, Murphy and her team adapted a battery-operated child’s jeep as the base for a new robot, using off-the-shelf consumer electronics to make the device autonomous. By the time another grant became available, the students had the hands-on experience they needed to work with new robots, including a shape-shifter named “Bujoit” that Murphy called into service on September 11.

Perhaps the hope for other new robots lies in toys. At least, that’s the philosophy behind an annual firefighting robot contest hosted now for 11 years by Trinity College in Hartford, Connecticut. Corporate sponsors include robot magazines, device retailers, the New England Association of Fire Chiefs, the Connecticut Fire Marshal’s Association, and the Connecticut Fire Chiefs Association.

The event, which attracts more than 200 competitors from high-school to post-graduate students, from hobbyists to professional designers, has incrementally upped the ante of difficulty for robot designers. The 2004 contest challenges entrants to build a computerized, not radio-controlled, robotic device that “can move through a model of a single floor of a house, detect fire (a lit candle), and then put it out.” The robot that can do it in the shortest time with the fewest errors will win.

Accounts of past efforts are reminiscent of old movies of failed flying machines—a combination of earnestness and serio-comedy as months of effort result in upside-down machines with tracks or nozzles whirling aimlessly in the air. But someone does win each year, keeping the hope alive for the next Wright Brothers of robotics.

"It will be a long time before any of these robots will be sophisticated enough to be able to help firefighters directly,” says Dr. Jake Mendelsohn, contest co-organizer and engineering professor at Trinity. “But one of the goals of this contest is to develop a robot that can help suppress a fire until the real firefighters arrive and put it out.” Mendelsohn cites promising developments, such as sensors that are sensitive to the unique ultraviolet emissions of a fire, walking robots that can move about in a cluttered house, and stair climbers.

Robots used in urban search and rescue operations have their own contest in the RoboCupRescue, whose fourth annual competition will be in Portugal, fall...
2004. The National Institute of Standards and Technology (NIST) develops test arenas for this competition, which NIST's robotics research engineer Adam Jacoff calls “a stepping stone from research to deployment” of indoor mobility devices. The autonomous mobile robots must navigate around obstacles in three NIST arenas and find simulated victims, both hidden and out in the open. Cues for the “targets” include mannequins, infrared emitters set at human body temperature, clothing, simulated body parts, recorded human voices, and hoses that emit compressed gases.

You’d think that the professionals’ robots win these contests, but that’s not always the case.

“Our contest is scored so that the more your robot does, the better score it gets,” says Mendelssohn. “A few years ago, a 10-year-old girl built a very clever robot out of wood and used motors out of a toy car. At the same event, three MIT professors got together and entered their very high-tech robot. In the contest, theirs never moved, while hers did and actually beat them. I have a picture of the professors standing around the little girl, asking her questions about her robot.”

New opportunities in robot research
The old adage about why we can put a man on the moon but can’t cure the common cold has an updated twist: If we can put two robots on the scorching planet of Mars, why can’t we develop good ones for earthly fires?

The answer is another old, true adage: Lack of money has stopped a lot of good projects. But all that may be changing. Robotics competitions that offer more than nominal prizes and pride of accomplishment may do the trick. The Department of Defense, for instance, will award $1 million this spring to the winner of the DARPA (Defense Advanced Research Project Agency) “Grand Challenge” for an autonomous ground robot that can drive from near Barstow, California, to Las Vegas.

A million bucks? That ought to build a fire under somebody’s research.

SOURCES FOR THIS ARTICLE


Japan Fire Department robots: from NFPA Journal article, May/June 2002; Tokyo FD Web page: http://www.tfpd.com/eindex.html; Email: angeladavids@hotmail.com.


Long-armed robot (Foster-Miller “Solem”): Contact: Arnis Mangolds at Foster-Miller, amangolds@foster-miller.com.

Other robots used at 9/11 site: Contact: Dr. Robin Murphy, murphy@csee.usf.edu.


Snake robots expert: Howie Choset of Carnegie Mellon University, Email choset@cs.cmu.edu. Telephone (412) 268-2495.

Other information on firefighting robots (manufacturers and labs) at IEEE Web site: http://www.service-robots.org/FirefightingRobots.php.


Foghat’s manufacturer is Fire Department Equipment International, inc., Orlando, Florida. Contact: FDE@cfl.rr.com.

Trinity College’s Annual Fire Fighting Home Robot Contest: http://www.trincoll.edu/pub/Press%20Releases/robot/index.htm. Contest founder and co-organizer, Dr. Jake Mendelssohn, Adjunct Professor of Engineering at Trinity College and instructor of Robotics at the Greater Hartford Academy of Math and Science. His Email: JMendel141@aol.com.


Adam Jacoff, robotics research engineer, NIST. Phone: (301) 975-4235. Web site: http://robotarenas.nist.gov.
Dry-Pipe Sprinkler Software

By James Golinveaux, P.E.

Taking the guesswork out of the numerous variables that impact the water delivery time of dry-pipe fire sprinkler systems.

Illustration by Celia Johnson
FOR AUTOMATIC DRY-PIPE fire-sprinkler systems, NFPA 13, Installation of Sprinkler Systems, requires a maximum water-delivery time of 60 seconds for all systems with a capacity larger than 750 gallons (2,840 liters). This time is measured from the moment the inspector’s valve is opened at the location farthest from the water supply until water flows from the valve, theoretically providing a worst-case condition.

Until recent advancements were made in computer-calculation methods, however, the numerous variables affecting the water-delivery time of dry-pipe fire-sprinkler systems couldn’t be anticipated because it was difficult to show how they caused other factors, such as water supply, volume, and air pressure, to change, as well. Only after the system had been installed could the required water-delivery time actually be verified.

Fortunately, computer software is now available to calculate dry-pipe system performance, and the 2002 edition of NFPA 13 allows designers to submit these calculations as acceptance testing, rather than perform a traditional field-validation test.

The advantage of dry-pipe fire-sprinkler calculation software becomes evident when we look at the complicated interaction of the four basic variables that affect water-delivery time in a dry-pipe fire-sprinkler system: air and water pressure; system capacity and piping configuration; the size of the test orifice; and the dry-pipe valve-trip ratio.

Air and water pressure includes system air pressure; static water pressure; and residual water pressure and flow. System air pressure is the pressure in dry-system piping that keeps the dry valve closed to prevent water from entering the system. This pressure is dictated by the static water pressure and the dry-pipe valve design.

Static water pressure is the pressure at the base of the sprinkler riser when it isn’t flowing into the fire-sprinkler system.

Residual water pressure and flow are the pressure of the water at a given flow rate. Each water supply follows a unique curve in which the pressure drops as the flow rate increases. This pressure drop significantly affects the time required to establish a steady discharge of water from the test connection after the dry-valve trips.

The total volume of all piping on the system side of the dry-pipe valve is the system capacity. It affects the volume of air that must be discharged from the system before a steady water discharge is established at the test connection.

Piping configurations include the tree, loop, and grid. The tree, which produces the fastest water-delivery times, consists of dead-end branch lines, cross-mains, and a feed main. Water must displace air only in the feed main, cross-mains, and the branch line with the test connection for water to reach the test connection. The air in the remainder of the system can be compressed into dead-end piping.

Until recent advancements were made in computer-calculation methods, however, the numerous variables affecting the water-delivery time of dry-pipe fire-sprinkler systems couldn’t be anticipated.

The loop configuration is so called because its cross-mains are looped, which increases the amount of air the water must displace to reach the test connection.

Finally, there is the grid, which is no longer allowed in dry-pipe systems because water has to displace the air in all the system’s branch lines and cross-mains before it can reach the test connection, resulting in very long water-delivery times.

The third variable, the size of the test orifice, controls the rate at which air is discharged from the system piping. The rate of discharge and the volume of air being discharged control the water-delivery time after the dry-pipe valve has been actuated. The test orifice is equivalent to the smallest orifice size on any sprinkler in the system.

The final variable, the dry-pipe valve-trip ratio, is the water-pressure to air-pressure ratio at which the valve opens. Dry-pipe valves are traditionally designed as differential-pressure valves in which a clapper holds water out of the dry system. The surface area on the air side of the clapper is greater than the area on the water side, allowing a lower air pressure to hold back a higher water pressure. This reduces the volume of air in the dry system that must be discharged so that water can reach the test connection.

Another dry-pipe valve design is the low-pressure latch type, which depends on actuators and a quick-opening device working together to allow the valve to function properly.

System operation and performance
To understand dry-pipe system performance, we must look at the sequence of events that occurs and the impact of valve-trip time, water-transition time, and compression.

When dry-pipe fire-sprinkler systems are “trip tested” for acceptance, certain events occur after the inspector’s test valve is opened. The air pressure in the system begins to drop, causing the dry-pipe valve to trip either at its designed air/water ratio or when an optional accel-
erator trips the valve on loss of air pressure. When the valve trips, water begins to fill the system by compressing trapped air and forcing it from the test valve. Finally, the water reaches the test connection, and a steady water discharge is established.

Let’s review these steps in a little more detail to understand the effects of variables.

For the dry-pipe valve to trip, the air pressure must drop to the point that water pressure forces the valve to open. The time this takes to happen is determined by the rate at which air can be discharged from the system and the amount of air that must be released to reach the trip pressure. This is controlled by air pressure, the size of the test orifice, the dry-pipe valve’s trip pressure, and an accelerator. A higher air pressure in the system will initially cause the air to discharge faster at the test valve. A larger test orifice allows air to discharge more rapidly from a system. Of course, the test orifice can only be as large as the smallest fire sprinkler orifice in the system.

As for the dry-pipe valve-trip pressure, different models trip at different water-pressure to air-pressure ratios. The typical ratio is 7:1 to 5:1. Assuming a valve’s trip ratio is 5.5:1 and the system has a static water supply of 75 pounds per square inch (psi [5.2 bar]), the dry-pipe valve will trip at 13.6 psi (0.9 bar).

Another dry-pipe valve design is the low-pressure latch type, which depends on actuators and a quick-opening device working together to allow the valve to function properly.

The air pressure recommended by the manufacturer typically includes a safety factor, as well as the compressor on-off differential settings. These are added to the trip pressure of 13.6 psi (0.9 bar) to obtain the maximum set air pressure. In this case, the valve manufacturer would recommend a maximum set air pressure of 39 psi (2.7 bar).

Because a large system can take as long as 98 seconds to trip, accelerators that react to the rate of pressure
A dry-pipe valve with a properly installed and maintained accelerator will trip faster, resulting in a much higher residual air pressure than is experienced if the air pressure is allowed to reach the normal trip ratio.
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lines, the cross-main and the branch lines are 200 feet (61 meters) shorter with 10 fewer fire sprinklers.

Piping arrangement also plays an important role in water-transition time. Take, for example, a 1,128-gallon (4,272-liter) center-feed system with 20 branch lines and 20 sprinklers per line. If we cap 19 of the branch lines and half of the end line, the resulting 421-gallon (1,594-liter) system will take 8 seconds longer to deliver water than the original 1,128.6-gallon (4,272-liter) system. Why? Because all the air trapped in the system has to be vented from the fire sprinkler before water arrival, and in the smaller system, there are no pockets of air to compress or non-flowing volumes of water to push the air anywhere but out the open fire sprinkler. The single open fire sprinkler can’t exhaust air as fast as the 6-inch (150-millimeter) riser can fill the system, causing the air to push back on the water and slow the fill rate.

In a similar system with an additional cross-main and four branch lines beyond the open test line, these additional lines and main bring the system volume from 421 gallons (1,594 liters) to 633 gallons (2,396 liters). With the added pipe, the air trapped in the cross-main with the plugged branch lines has more volume beyond the flowing line so that the water compresses the air as it enters the system.

Although the test sprinkler is the same distance from the source and the pipe size is the same, the water-transition time drops from 36.5 seconds to 18.7 seconds. The water filling the system pushes air in the cross-main into the trapped volume beyond the test sprinkler faster than it could push the air out of the open sprinkler in the single path. This brings the water to the open fire sprinkler in less time, despite the fact that the volume has been increased.

Now let’s look at the original system with 20 branch lines. This system contains a large amount of non-flowing volume that allows the water to displace air by compressing it into the trapped branch lines. This original 1,128-gallon (4,272-liter) system has a water-transition time of 28.5 seconds, much faster than the 36.5 seconds of the first system in our example but slower than the 18.7 seconds of the second system.

A dry-pipe valve with a properly installed and maintained accelerator will trip quicker and faster, resulting in a much higher residual air pressure than is experienced if the air pressure is allowed to reach the normal trip ratio.

When a quick-opening device is used on a dry valve, the incoming water is thus subjected to more air pressure in the system at the instant the valve trips, and this additional air pressure will delay the water-transition time.

Obviously, piping arrangements play a significant role in water transition. Volume alone isn’t always the essential indicator for transition times. Volume and piping configuration must both be considered.

**Compression**

Compression is the time between the moment water reaches the test outlet until the water pressure can be kept above the minimum required. This is often referred to as “full flow” or “when the outlet stops spurt ing air.”

The best description of full compression is the point at which the volume of water entering the riser equals the volume of water discharging from the fire sprinkler. This means that all of the trapped air has been compressed and is no longer fluctuating. This value, though not known in the field, can be identified by computer validation.

The more critical measure of adequate sprinkler protection is the point at which the discharging sprinkler meets or exceeds its minimum flow or density requirement. A field test or delivery-time calculation should end when the fire sprinkler is functioning at the minimum designed flow. Additional air escaping from the fire sprinkler is not significant as long as the discharge density is not disrupted.

**Computer calculations**

In the software, the dry-pipe model is characterized by a system of straight pipes connected by nodes, which can represent a transition point from one pipe size to another, elbows or bends, tees and laterals for dividing or mixing streams and valves, and exit nozzles, such as an open fire sprinkler.

The water supply can be modeled as either static or variable, such as a pump-driven water supply, and the equations for the flow properties of air and water are based on the unsteady equations for fluid flow.

These equations are used to solve for flow properties in the regions of fluid flow and gas flow in the system at any point, with the appropriate boundary and continuity conditions coupling the equations for water and gas. The input screens are as simple as tree generators, as in most computer hydraulic programs or node-by-node input for more complicated systems. The output information is similar to hydraulic calculations, but the summary data are based on trip and transition times rather than water flow and friction loss. The software model will allow more than one fire sprinkler to activate.

Dry-system performance, which is affected by water-delivery time, will be greatly improved with the knowledge of actual water-delivery times.

Future performance-based designs must take advantage of actual water delivery by modeling the process rather than simply using the prescriptive volume-time rules found in older editions of NFPA 13.

JAMES GOLINVEAUX, P.E., is senior vice-president of Research and Development for Tyco Fire Products, which represents Central Sprinkler, Gem Sprinkler, and Star Sprinkler.
Talking Heads

Through its initiatives, Underwriters Laboratories strives to enhance fire sprinkler performance.

By Kerry Bell, P.E.
FOR DECADES, FIRE SPRINKLERS have proven to be an extraordinarily potent tool for protecting property and life from the potentially devastating effects of fire. With the increased awareness and public concern for building safety, there is a growing need for buildings to be fitted with effective security and safety systems. The expanded usage of sprinklers and changing installation environments require on-going performance assessments and periodic product enhancements to ensure a high level of effectiveness in the future.

As a part of Underwriters Laboratories, Inc.'s (UL's) standards development process, UL routinely considers field experience to assess the need for revising product standards. In recent years, a number of revisions have been introduced into UL's sprinkler standards to enhance the operating performance characteristics of both wet- and dry-type sprinklers.

Sprinkler standards and requirements
Currently, UL publishes three standards for sprinkler products as follows:
- Standard for Automatic Sprinklers for Fire-Protection Service, UL199; Standard for Residential Sprinklers for Fire-Protection Service, UL1626; and Standard for Early-Suppression Fast-Response Sprinklers, UL1767.

The products covered by these standards are intended to be installed in accordance with NFPA's installation standards, including NFPA 13, Installation of Sprinkler Systems; NFPA 13D, Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes; and NFPA 13R, Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height. NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems contains comprehensive requirements for assessing the ability of the sprinkler system to perform as intended on an on-going basis.

The fire sprinkler community is generally aware of the fact that UL's sprinkler standards contain tests to evaluate the capability of these products to distribute water in such a manner that will control or suppress fires. However, many aren't aware these standards also include tests to evaluate sprinkler performance under stressed and adverse field conditions. Each of these standards contains more than 35 different performance tests. Among these are: general corrosion tests that expose samples to salt spray, hydrogen sulfide, and carbon dioxide-sulfur dioxide atmospheres; stress corrosion tests for copper alloy and stainless steel components; exposure of samples to 98 percent relative humidity; high-temperature exposure tests for each temperature rating; vibration exposure; impact resistance; and rough usage.

Although these tests are considered to be very challenging, UL's analyses of field performance data indicated there were opportunities to improve the performance of certain type sprinklers.

Based upon reports from property owners, sprinkler contractors, authorities having jurisdiction, and others, fortified by UL's testing of thousands of sprinkler samples from hundreds of installation locations across the country, two key areas for enhancing sprinkler operation performance were identified: the release of the water seal assembly and resistance to premature (unwanted) sprinkler operation.

Water seal assembly
Until the early 1960s, the prevention of leakage from sprinklers was primarily achieved through the use of a metal-to-metal compression seal arrangement typically employing a copper gasket. Today, a conical spring (commonly referred to as a Belleville spring) with a Teflon® film gasket is the most prevalent means used in sprinklers to prevent leakage. A schematic of typical water seal configurations used over the years is provided in Figure 1.

Since 1996, UL has conducted operational tests on a large number and type of O-ring sealed sprinklers sampled from field installations. While the operational test results of these sprinkler types varied substantially in the different installation locations (in some locations all samples operated as intended, and in others all samples experienced elevated operating pressures), several O-ring sealed sprinkler constructions have required greater than 40 psig to discharge water for 20 percent of the samples tested.

Elevated operating pressures were also observed in many dry-type sprinklers. Since the 1970s, most dry sprinklers were constructed with O-ring water seals. Dry sprinklers are generally found in locations having harsh environmental conditions, characterized by wide variations in temperature, humidity, and corrosive conditions, such as attics, car ports, cold storage structures, parking garages, warehouses, and unheated portions of
buildings. Testing of dry-sprinkler samples provided to UL revealed that approximately 25 percent of the samples required a pressure greater than 40 psig to discharge water.

The analyses of wet- and dry-sprinkler samples received from field installations have indicated that a broad, but not clearly defined, spectrum of materials and chemicals may reside within sprinkler inlets, including various types of oils, surfactants, chemicals associated with water potability and pipe sealing compounds, hard water deposits, sand, dirt, etc. These materials and chemicals may act to accelerate the corrosion process and inhibit the intended movement of sprinkler operating parts.

UL identified four primary factors considered to be contributing to the inhibited sprinkler operation, particularly in O-ring sealed sprinkler; the collection of corrosion and other products in the small annular clearances; between operating parts.

See Figure 1, illustrating the annular clearances for O-ring sealed sprinklers, and Figure 2, illustrating the build-up of deposits in a wet sprinkler. Figure 4 illustrates the areas of small clearance for dry sprinklers, and Figure 3 indicates the level of deposits generated in the new deposit-loading test for dry sprinklers and the transfer (sticking) of the O-ring material to the mating sealing surface.

Table 1 summarizes the revisions adopted into UL's sprinkler standards related to enhancing the operating performance characteristics of the water seal assembly.

### TABLE 1
Revisions to UL Standards Covering Water Seal Assemblies

<table>
<thead>
<tr>
<th>Revisions to Standards</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrocarbon and water immersion exposure</strong></td>
<td>Significant levels of hydrocarbons and water deposits have been found in sprinkler inlets sampled from field locations. Sprinklers must operate as intended after these exposures.</td>
</tr>
<tr>
<td><strong>Ban on use of dynamic O-ring water seals</strong></td>
<td>This type of water seal was banned since it wasn’t possible to develop comprehensive performance tests to simulate the broad range of degradation mechanisms observed in O-ring sealed sprinklers. Between the operating parts, O-ring material sticking to the mating surface, and deposits resulting from water leakage past the O-ring.</td>
</tr>
<tr>
<td><strong>Dry-Sprinkler deposit loading test</strong></td>
<td>Dry sprinklers are typically installed in harsh environments, and substantial deposits have been observed on the internal operating components. After this exposure, the sprinkler must operate as intended.</td>
</tr>
<tr>
<td><strong>Dezincification test</strong></td>
<td>Dezincification can weaken the pressure-retaining capabilities of sprinkler parts and potentially cause leakage, loss of structural integrity, or inhibited operation. This revision establishes a minimum level of resistance to dezincification and is applied to copper alloy materials containing more than 15 percent zinc exposed to the sprinkler system water.</td>
</tr>
</tbody>
</table>
Resistance to premature sprinkler operation
UL has received an increased number of field reports of sprinklers discharging water without an apparent cause for the operation, commonly referred to in the industry as premature sprinkler operation. It appears that several factors may be contributing to these occurrences. Dry sprinklers installed in freezers and glass-bulb sprinklers have been the focus of many of these concerns.

With regard to dry sprinklers installed in freezers, ice build-up external and internal to the sprinkler has the potential to apply undesirable stresses to the operating parts. With regard to external ice build-up, it is critical for the hole that accommodates the sprinkler installation to be properly insulated and sealed. If not sealed properly, ice may build up around the sprinkler due to condensation and hot, moist air entering the freezer. Occasionally freezing occurs when a dry sprinkler isn’t sealed properly around the sprinkler penetration. These situations should be readily visible during periodic sprinkler system inspections.

Based upon the same air-movement principle, ice may build up internal to the dry sprinkler if the water seal assembly and extension nipple connection isn’t completely sealed. New requirements have been adopted into UL’s sprinkler standards that require this connection to be completely airtight.

While glass bulbs have been used as heat-responsive elements in sprinklers for decades, bulbs in recent years have been miniaturized to enhance the sensitivity to fire conditions. Considering the general phases of a sprinkler’s life, there is ample opportunity for damage or overstressing of the glass bulb to occur. There are several potential sources of damage to glass-bulb heat-responsive elements and causes for the premature sprinkler operation.

Taking into consideration the scope of the product requirements contained in UL’s sprinkler standards in concert with the potential sources of glass-bulb damage, these standards were revised to require 100 percent glass-bulb integrity testing after the sprinkler has been fully assembled and subjected to all the other production testing. Also, to minimize the potential for

The fire sprinkler community is generally aware of the fact that UL’s sprinkler standards contain tests to evaluate the capability of these products to distribute water in such a manner that will control or suppress fires.
glass-bulb damage due to the extensive handling that typically occurs after the sprinkler has left the manufacturing facility, a revision was adopted to require all glass-bulb sprinklers be fitted with protective covers.

Table 2 summarizes the revisions to UL sprinkler standards that are intended to reduce premature operation in the field.

With the exception of the requirements related to enhancing resistance to premature sprinkler operation, UL-listed fire sprinklers currently manufactured are required to comply with the new criteria. The new requirements for dry-sprinkler air tightness, protective covers for glass sprinklers, and glass-bulb integrity testing will be fully implemented in 2004.

Although concerns have arisen in recent years regarding the operating characteristics of certain sprinklers, the overall effectiveness of sprinkler system protection continues to be at a very high level. In many fire incidents, it has been reported that sprinklers in close proximity to the fire origin have controlled fires and limited damage even though the sprinkler nearest the fire didn’t operate as intended. Certainly, these reports are excellent examples of the level of safety incorporated into sprinkler system protection. The on-going effort to expand the usage of fire sprinklers as a protection tool will make our world a safer place to live.

**TABLE 2**

<table>
<thead>
<tr>
<th>Revisions to UL Sprinkler Standards Related to Premature Sprinkler Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry-sprinkler air tightness/leakage test</strong></td>
</tr>
<tr>
<td><strong>Protective covers for glass-bulb sprinklers</strong></td>
</tr>
<tr>
<td><strong>100 percent glass-bulb integrity testing</strong></td>
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**Figure 4**: Typical dry-sprinkler construction incorporating an O-ring water seal. Note the areas where deposits can collect and inhibit sprinkler operation.

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</table>

**Kerry Bell**, P.E., is an engineer with the Fire Protection Division of Underwriters Laboratories, Inc., based in Northbrook, Ill.
BEFORE NFPA PUBLISHED the 2002 edition of NFPA 13, Installation of Sprinkler Systems, ceiling pocket guidance could only be found in formal interpretations of the 1978 and 1980 editions of the standard and published through the 1999 edition. The interpretations stated that fire sprinklers weren’t required in 4-by-8-foot (1.2-by-2.4-meter) skylights because the skylights wouldn’t delay the adjacent sprinklers’ activation. This was a reasonable assumption since a 4-by-8-foot pocket is small and shouldn’t capture the entire fire plume. However, the question of what to do with larger pockets that could capture an entire fire plume remained.

Under the theory that a skylight pocket must fill with heat from the top down before any heat escapes to activate adjacent fire sprinklers, the answer was to install fire sprinklers in the pocket. As it turns out, though, the theory didn’t accurately depict the way ceiling features affect the ceiling jet or the part momentum plays in their interaction. This only became apparent when the American Fire Sprinkler Association (AFSA) used the National Institute of Standards and Technology’s Fire Dynamics Simulator to evaluate sprinkler activation times in an effort to provide the technical basis for the proposed AFSA’s criteria submitted to Technical Committee.

The base premise of the evaluation was that the maximum acceptable time to activation is the one a standard-response fire sprinkler produced in a flat ceiling. To be conservative, the height of the flat ceiling used was the same as that of the pocketed ceiling’s lower level. This produces the shortest activation time for the standard response sprinkler, and this is the reason why the allowance in 11.2.3.2.3 can’t be used.

The evaluation produced some surprising conclusions. The first concerned the relationship between pocket depth and time to sprinkler activation. In shallower pockets 1 foot (0.30 meters) to 3 feet (0.91 meters) deep, the time to activation increases significantly. However, in ceiling pockets 3 feet (0.91 meters) to 7 feet (2 meters) deep, the activation time actually decreased, as shown in Figure 1. This finding shed some light on the way heat actually fills a ceiling pocket. Velocity vectors in a shallow pocket show that heat hits the edge of the pocket where its momentum triumphs against its buoyancy, causing it to turn and run down the edge, then turn out of the pocket. As the depth of a pocket increases to 3 feet (0.91 meters), the time to activation also increases. In a pocket almost 3 feet (0.91 meters) deep, heat loses enough momentum to allow its buoyancy to turn it back into the pocket, still bound by the pocket edge.

A circle effectively forms between the pocket edge and the fire plume, creating a fairly calm center, much like the eye of a hurricane, that’s excluded from the volume of the pocket. We now have a thermal barrier across the bottom of the pocket, giving us a reasonable explanation for the faster activation times. The hotter center portion of the fire plume will penetrate this barrier, but the cooler (better to say “less hot”) outer portion won’t, instead flowing out of the pocket. This is similar to the smoke stratification that sometimes occurs in high-ceilinged facilities such as enclosed stadiums, where the smoke spreads out well below the actual ceiling.

The second interesting finding was that the location of the fire in relation to the fire sprinkler doesn’t affect activation time. In a flat ceiling, two fire sprinklers equidistant from a fire have a shorter activation time than four equally spaced fire sprinklers centered over the fire. This is a simple function of distance from the fire, which, in the evaluation, generated a 15 percent increase in activation time. In a ceiling pocket that captured the entire fire plume, changing the location of the fire produced no noticeable difference in activation times.

PROTECTING CEILING POCKETS

By Roland Huggins, P.E.

A technical review of an industry theory leads to some surprising results.
Let's now focus on the criteria itself. Section 8.5.7, which addresses skylights, is a general requirement that, as stated in Paragraph 8.5.1.3, applies to all types of fire sprinklers unless modified by the more restrictive rules of Sections 8.6 through 8.12. Since no additional criterion in these sections addresses skylights, Section 8.5.7 applies to all types of fire sprinklers. However, this isn’t the case for larger ceiling pockets, which are covered by Sections 8.6, “Standard Pendent and Upright Fire Sprinklers,” and 8.8, “Extended Coverage Upright and Pendent Spray Fire Sprinklers.” These are the only types of fire sprinklers that can be excluded from larger ceiling pockets.

There’s no guidance for residential or sidewall fire sprinklers. This shouldn’t be interpreted to mean that unsprinklered ceiling pockets would never be allowed in structures using residential or sidewall fire sprinklers, however. What it really means is that the initial evaluation focused only on pendent fire sprinklers. Since residential and sidewall fire sprinklers are particularly sensitive to ceiling features, it will be interesting to see what the continued evaluations will show.

The only other criteria we need to address is the requirement that each unprotected ceiling pocket be “separated from any adjacent unprotected ceiling pocket by a minimum of 10 feet [3 meters] horizontal distance.” This seems fairly explicit, but being completely literal can produce a less conservative outcome than intended.

Take a ceiling pocket along an exterior wall that’s used to increase the amount of natural light in the room. A single pocket measuring 2 feet (0.60 meters) by 3 feet (0.91 meters) by 30 feet (9 meters) falls within the criteria. On the other hand, the same pocket divided lengthwise by channel stops becomes two adjacent pockets to which the criteria no longer pertain, despite the fact that such an arrangement improves sprinkler response. The reason the criteria no longer pertain is the code developers’ underlying concern that the heat has to pass through a second pocket before reaching the second ring-of-fire sprinklers (see Figure 2).

Unfortunately, a lot of facilities have multiple ceiling pockets closer than 10 feet. When they are in a single line between a row of fire sprinklers, as shown in Figure 3, there’s no reason, from the standpoint of system performance, to require sprinklers within the pockets. We didn’t want to make an issue of this, though, since it’s a difficult concept to codify in a sentence or two and the need to make the initial step in addressing ceiling pockets outweighed the need to clarify this aspect.

Despite there being some minor refinements to be made on how NFPA 13 addresses ceiling pockets, the criteria in the new edition of the standard continues to improve and expand in response to changes in the built environment.

ROLAND HUGGINS, P.E., is V.P. of engineering for the American Fire Sprinkler Association and a member of numerous committees, which include the NFPA 5000 and NFPA 13 technical correlating committees.
UNITED STATES
WILDFIRES
2003
FOR MANY, THE 2003 U.S. wildfire season will be remembered for video footage of families fleeing their Southern California homes as infernos torched neighborhoods throughout the wildland/urban interface.

Last year, approximately 62,000 fires burned roughly 3.87 million acres (1.56 million hectares) nationwide. That’s below the 10-year average of 64,000 fires and 4.64 million acres (1.87 million hectares), according to the National Interagency Fire Center. However, those statistics belie the severity of the season.

To begin with, the 2003 wildfire season was one of the deadliest in recent memory. Thirty firefighters lost their lives, more than in any year since 1994 and the second highest number since 1937. In addition, 22 civilians were killed.

Although less acreage burned in 2003 than in recent years, much of what did burn was in populated wildland/urban interface areas. In California, the October blazes that scorched roughly 750,000 acres (303,517 hectares) and destroyed more than 3,600 homes and 33 commercial properties were among the costliest natural disasters in the state’s history. And California wasn’t alone. Parts of Washington, Montana, and Arizona suffered tremendously, too.

Preliminary forecasts anticipated a difficult year, and “the season lived up to expectations,” says Alice Forbes, director of Fire Operations for the U.S. Forest Service at the National Interagency Fire Center. The situation might have been even worse, she notes, but the forecasts helped firefighters identify potential hot spots before the season began and shift resources and staffing accordingly. Because of that, she says, “we were very successful in our initial attacks, and that helped keep the total acreage numbers down.”

Still, the 2003 season perpetuated a disturbing trend. Until recently, big, fast-moving fires that consume 100,000 acres (40,469 hectares) or more were uncommon. By the late 1980s, they had become every two- or three-year events. During the past decade, however, they’ve become a regular part of the annual wildfire landscape. The worst fires of the year have been bigger and faster, with denser fuel packages to feed them, than in the past.

“There seems to be a new norm emerging,” Forbes says. “After a hundred years of fire suppression, the biomass per acre is significantly higher now than it was 30 years ago when I started fighting fires.”

Before the late 1980s, the typical spread rate for a fire was about a chain (66 feet or 20 meters) per hour. Now, major fires, such as Southern California’s 273,000-acre (110,480-hectare) Cedar fire and the 108,000-acre (43,706-hectare) Simi fire, spread at a rate 20 to 50 times faster than that, she says.

And in almost every case, wildland/urban interface issues come into play. Reservoirs, communications towers, and communities encroach on wildlands so that “in almost every fire incident, management teams are dealing with a community at risk,” Forbes says.

A slow and mild start

The year began deceptively mild. As early as January, fire-potential indicators were predicting above-normal activity for large fires in northern Idaho, Montana, the Northwest, the Rocky Mountains, and the Great Basin.

And weather wasn’t the only factor. Throughout the West, bark-beettle infestations had decimated drought-ravaged forests, exacerbating the risk of fire. Arizona’s Prescott Mountains; Idaho’s Red River area; California’s Riverside, San Bernardino, and San Diego counties; and many other areas were littered with dead trees. The problem was so severe that in March then-California Governor Gray Davis proclaimed a state of emergency in the three California counties where trees on more
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than 150,000 acres (60,703 hectares)—many on or in the interface—had died.

But a wet spring in much of the West—with the exception of the Southwest—mitigated the danger. Nationwide, in fact, only about 400,000 acres (161,876 hectares) had burned by the end of May, roughly half the 10-year average for that date.

As spring warmed to summer, a strong and persistent ridge of high pressure dominated the weather pattern over the West. Centered over the Great Basin, an intermountain region centered mostly in Nevada, rather than its usual position over the Four Corners where Utah, Colorado, Arizona, and New Mexico meet, the pattern led to an especially deep low-pressure trough over the East. That sent the mercury soaring to record levels in the West and produced one of the coolest, stormiest summers on record in the East. Those wet conditions, which persisted throughout the summer, allowed eastern states to escape the wildfire season largely unscathed.

In Arizona and New Mexico, however, fire activity escalated in May and continued well into July. On June 17, the 85,000-acre (34,398-hectare) Aspen fire erupted near Tucson, Arizona, forcing hundreds of residents in Summerhaven, a mountaintop forest village, to evacuate. By the time the fast-moving fire was contained a month later, it had destroyed 323 homes.

In Montana’s Lolo National Forest, 62,000 acres (25,090 hectares) burned, and a number of adjacent communities were threatened. Three homes were destroyed, and “it was a miracle more didn’t burn,” says park spokeswoman Sharon Sweeney, who credits local firefighters’ quick initial response with protecting the interface communities.

The fire was a portent of more to come. By early July, fire-danger indices across much of the interior West had begun to climb. Nevada experienced its warmest summer ever, Oregon its second warmest, and Idaho its third. Washington reported its driest summer and New Mexico its driest July.

The conditions gave rise to lightning storms. Between July 20 and July 31, a series of storms sparked 3,660 fires throughout the Northwest, the Northern Rockies, and the Eastern Great Basin. By month’s end, several fires in western Montana forced hundreds of residents to evacuate and threatened facilities in Glacier National Park.
On July 24, the National Preparedness Level was raised from Level 4 to Level 5, an indication that the nation was throwing all available resources at the fires. The nation remained at Level 5 for 39 days.

By August, more than 30 large fires were burning in 11 western states, straining suppression resources. Late in the month, an Army battalion from Fort Hood, Texas, and fire crews from Australia and New Zealand helped quell blazes in western Montana. They remained in place through mid-September. At the season’s peak, more than 50 operations-management personnel were assigned to fires in western Montana.

The Rocky Mountain area reported steady initial-attack activity from July until early September, but large fires were mainly limited to Colorado’s western slopes, the mountains of north central Wyoming, and western South Dakota. Still, activity was well below normal, with just over half the 10-year average of acreage scorched through mid-September.

Summertime fire activity in the Western Great Basin, Southern California, and the South was below average, as well. Southern California reported moderate-to-heavy initial-attack activity and a steady stream of large fires, but most lasted only a short time. Only 4 percent of Nevada’s normal number of acres had burned by the end of August, and the state reported fewer than 20 large fires. Rick Ochoa, fire weather program manager for the National Interagency Fire Center, credits the mild season in Nevada to timely summer rains, a condition that spared Alaska, as well.

“They never had a prolonged period of hot, dry weather followed by dry lightning,” he says.

In early September, lightning significantly increased fire activity in Northern California and the Northwest, producing numerous large fires on the Mendocino National Forest, the Coastal Range, and the Shasta-Trinity National Forest, and in central Washington.

The California infernos
For many, particularly Easterners who watched the season unfold on their television screens, the 2003 wildfire season really began in October, when parts of Southern California caught fire.

The fires, all of which are believed to have been started by people, ignited under the worst possible conditions. The state was, and remains, in the midst of the worst drought in its 150-year recorded history. While failing to alleviate the drought, spring rains spawned fine fuels such as chaparral brush, which dried to tinder during the searing summer months. Bark beetles added to the problem by decimating huge swatches of forest.

And in the increasingly congested interface homes added to the fuel load.

When October’s hot, dry Santa Ana winds blew in from the mountains at 70 to 80 miles (113 to 129 kilo-}

More than 1 million dead trees—as many as 550 per acre—still stand in San Diego, San Bernadino, and Riverside Counties, and many more are expected to die over the next several years.

The Paradise fire northwest of Escondido burned nearly 57,000 acres (23,067 hectares) and 221 homes, while the Grand Prix fire moved along a 30-mile (48-kilometer) front and stretched all the way into Los Angeles County. By year’s end, just under a million acres (404,690 hectares) had burned statewide.

“For a while there, it looked like the fires were going to burn straight into the Pacific Ocean,” says Karen Terrill, spokeswoman for the California Department of Forestry and Fire Protection, which is responsible for fire protection on about 32 million acres (13 million hectares) of private land.

Amazingly, the situation could have been far worse. Because a multi-agency task force had been aggressively clearing dead trees from roads and communication towers for months, firefighters were able to light back fires, establish firefighter safety zones, and maintain radio communication systems, Mathes says. Those precautions helped protect homes in the Lake Arrowhead region in particular and enabled firefighters to keep mountain roads clear so homeowners could evacuate.

“We spent a lot of time planning for the fire season this year,” says Thom Wellman, mountain division chief
Fresh snow in December, 2003, around Lake McDonald in Glacier National Park, Montana, adds contrast to the shoreline of blackened trees that were burned in the previous summer’s Robert fire.

for San Bernadino County. “We created community-specific protection plans addressing things like ingress and egress, water supplies, and safety zones for firefighters.”

A video and PowerPoint presentation were also created to help cooperating local authorities, such as sheriff’s departments and animal-control officials, prepare for the season.

A somber outlook

Despite the devastation, the outlook in California appears no less volatile for the 2004 wildfire season. More than 1 million dead trees—as many as 550 per acre—still stand in San Diego, San Bernadino, and Riverside Counties, and many more are expected to die over the next several years. Even with that knowledge, it’s hard for responders to take adequate action.

“Think of the logistics involved in removing a million trees,” says Terrill. “It’s not just the cost and the time, but what do you do with the wood, most of which is damaged?”

While firefighters and foresters throughout the state hope President Bush’s new Healthy Forest Initiative will provide resources to help remove the trees and alleviate the problem, they know better than to see it as a panacea.

Most quickly cast the mantle of responsibility on private landowners, many of whom have been prompted by the fires to take greater care in safeguarding their homes and properties.

In California, at least 10 new Fire Safe Council chapters were established in the weeks following the wildfires, bringing the total number of communities acting to protect themselves to 114.

Nationwide, interest in the NFPA’s Firewise Communities Program is growing, as well, according to Jim Smalley, manager of wildland fire protection for NFPA. So far, 24 communities have earned the Firewise USA designation, and more than 1,200 others have downloaded the application form. In addition, nearly 10,000 people have attended Firewise workshops to protect their homes from wildfires.

Firewise is sponsored by more than 30 organizations, including NFPA, the USDA Forest Service, the National Park Service, the U.S. Fire Administration, the American Association of Home Builders, the Institute for Business and Home Safety, and the American Red Cross.

For more information, visit the Web site at www.firewise.org/communities.

Still, with thousands of other communities at risk in the interface, protecting homes and residents by doing such things as removing millions of dead trees from forests will be a slow and difficult process. And it’s a process that nature may not wait for us to complete, particularly in historically fire-prone areas such as Southern California.

“Southern California’s climate, topography, and chaparral make it an incredibly flammable place to put seven million people,” notes Mathes. “Under the same weather conditions, the fires we had last fall will happen again—and we will certainly have the same weather conditions again.”
Even before the embers of Southern California's wildfires had stopped smoldering, pundits were playing Monday-morning quarterback. Local politicians criticized the military for not intervening sooner, as homeowners—many of whom had voted down tax levies that would have increased firefighting resources—called for additional protection.

ON A MORE reasonable note, NFPA, the International Association of Fire Chiefs, and others called for more federal money for training and equipment. California established a blue-ribbon governor's panel to study the fires. The U.S. Forest Service is also conducting an evaluation of the fires from the perspective of the Federal response. One of the prime questions that's being asked about the California wildfires is whether staffing was a problem.

Not according to Karen Terrill, spokeswoman for the California Department of Forestry and Fire Protection. “I'd characterize the effort as hugely successful,” she says. “We mobilized 15,000 firefighters in a 16-county area to fight 14 major fires. I think that was history-making, and I think they did an extraordinary job.”

Terrill says criticism of firefighters for not calling the military in sooner is unfounded, and shows a lack of understanding of the way the system works. Because the 1932 Economy Act prevents the military from taking jobs from commercial interests, private firefighting resources must be exhausted before military assistance is granted.

Others say frustrations associated with staffing and resources were simply the unavoidable result of fighting so many large fires at once.

"In general, given the near simultaneous starts and the overwhelming speed with which the fires spread, we're comfortable with the response and the resources we got," says Matt Mathes, spokesman for the U.S. Forest Service in California. “There's always a lot of competition for resources. Every fire commander and community wants to think his fire is the top priority.”

In San Bernardino County, the United States' largest county in area, "we were constantly getting rearranged in the pecking order," says Tracey Martinez, spokes-
woman for the San Bernadino County Fire Department. “We got dropped from number one to number two when the San Diego fires broke out. That was one of our biggest issues because it really affected our initial attack on the Old fire.”

As with all fires, ensuring an effective initial attack is vital to controlling fires in the wildland/urban interface, an area commanding increased attention. According to the 2002 Needs Assessment of the Nation’s Fire Service, conducted by NFPA and the U.S. Fire Administration, 69 percent of the 8,248 fire departments responding to the questions described a 500-acre (202-hectare) wildland/urban interface fire as being within their scope of operations. However, only 26 percent felt they could handle such a situation with trained local personnel. Even fewer departments—22 percent—felt they could handle such a fire with local equipment.

Training needs are particularly acute for departments serving in small communities. Although 89 percent of departments serving small communities have wildlands in their jurisdiction, 45 percent lack formal training in wildfire-fighting techniques for their personnel involved in such duties, according to the survey.

In a November letter to President George W. Bush, Harold Slatonberger, general president of the International Association of Fire Fighters, summarized the situation this way: “A critical staffing shortage of firefighters still plagues communities coast to coast. Over two-thirds of all fire departments operate short-staffed. The overwhelming number of firefighters and rescue personnel continue to lack the training and equipment they need to operate effectively and protect their respective communities.”

The message NFPA, a number of other advocacy groups, and government agencies delivered to Congress in a report less than two weeks later highlighted many of the same issues. In describing the changing role and needs of local, rural, and volunteer fire departments in the wildland/urban interface, the report underscored the importance of trained, community-based first responders in quickly and effectively containing fire starts.

The report emphasized the need for wildland fire training, efficient interagency response, initial attack and emergency communications capability, and a coordinated federal and state assistance effort.

“Dealing with fire in the interface is complex,” says Colorado State Forester Jim Hubbard. “You’re dealing with evacuations and protecting lives and property at the same time you are trying to extinguish a wildland fire, and those are different types of responsibilities. The challenge in the interface lies in safely integrating firefighting resources early in a fire.”

Ensuring that first responders have appropriate training is vital, Hubbard says, and it’s not as simple as it sounds. Today, particularly with the increased emphasis on homeland security, local fire departments are trying to meet an ever-growing array of responsibilities. In addition, they’re being tapped to participate in ancillary activities, as in the case of the space shuttle-recovery effort. Those activities bite into time that might otherwise be devoted to training for interface fire situations.

Thom Wellman, mountain division chief for San Bernadino County Fire Department, feels NFPA could play a role by developing a standard similar to NFPA 1710, Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, that would spell out the appropriate size of crews responding to wildland/urban interface fires. San Bernadino County maintains three-person engine crews, while federal engine crews typically consist of five firefighters.

Rich Schell, chief of Fire Planning and Engineering for the California Department of Forestry and Fire Protection, agrees that larger crews might be helpful in fighting typical wildfires, but he says that residents also need to be prepared to play a critical role in protecting their homes and themselves.

A wildfire burns around a house in the foothills of Lake Arrowhead, California, as firefighters attempt to put it out as the Grand Prix fire marches towards the community of Lake Arrowhead, in the mountains above San Bernardino, California.
2003 CALIFORNIA WILDFIRES
By Jennifer C. Berkshire

California's wildfire woes

A look at the region's brush-covered foothills that dominate the landscape is a reminder that there's still lots of work to be done.

The wildfires that swept through Southern California last fall were devastating by any measure. More than 750,000 acres (303,517 hectares) burned, destroying more than 3,750 homes and causing 22 deaths. Yet when the smoke finally cleared, California fire-safety experts saw more than charred hillsides and ruined structures; they also saw real hope for the future. After years of trying to educate residents about the dangers inherent in living in the wildland/urban interface, Californians, say fire experts, may finally be getting the message.>>
“There were homes that made it through the fires because of fire-prevention measures,” says Ian Coch, Firewise community planner for the city of Glendale, 10 miles north of Los Angeles. “People could see the lessons for themselves.”

For the past two years, Coch has advised the neighborhood of Whiting Woods, the only community in California recognized as “Firewise” by a consortium of wildland fire agencies, including the USDA Forest Service, the Department of the Interior, the National Association of State Foresters, the U.S. Fire Administration, and NFPA.

According to Jim Smalley, manager of wildland fire protection for NFPA, other than the ongoing workshop efforts in Glendale, there’s little indication that Firewise Communities/USA has taken hold.

While Whiting Woods wasn’t touched by the most recent fires, notes Coch, residents of the neighborhood’s 170 homes aren’t taking any chances. They’re now working with local firefighters to construct a buffer zone of reduced vegetation so that their community will have what experts call a “defensible space” the next time wildfires strike.

“Firewise Communities offers simple fire-prevention measures that homeowners can implement,” says Coch. “All of these measures will help the next time around.”

Getting Firewise

There’s plenty of evidence that Coch is correct. Months after the wildfires, Southern Californians are still talking about Stevenson Ranch, a subdivision of 3,500 homes that many regard as a blueprint for effective fire-prevention planning. Even as flames from the Simi fire were driven into the Santa Clarita Valley—“the fire was basically in their back yards,” says Brian Nicholson, a public information officer for the L.A. County Fire Department who helped battle the Stevenson Ranch blaze—the community lost not a single life, nor a single structure.

Nicholson praises the residents.

“Kudos to them,” he says. “They understood the risks of living here because they’d done their homework. Future homeowners who are considering buying a home in a brush area need to know these risks.”

But even more essential, he notes, was the way in which the community was planned and built. The streets that snake through the neighborhood are more than wide enough for fire apparatus, and street addresses are clearly visible. Following along Firewise guidelines, homes feature state-of-the-art fire-safety construction: fire-retardant roofs, sealed eaves to prevent wind-driven sparks from blowing into attics, and double-glazed window panes that can withstand severe heat. There is no sign of a wood shingle, the California firefighter’s nemesis.

“People have learned over the years that incorporating these features now can save on costs down the road,” says Nicholson.

Crestline, California, resident Holly Rizzo was deeply impressed by the Stevenson Ranch story. The homeowner, who lives in a 1930s-era structure near Lake Arrowhead, was forced to evacuate her home when fire swept through the San Bernardino Mountains. Upon returning, she was shocked to see just how close she had come to losing everything.

Other than the ongoing workshop efforts in Glendale, there’s little indication that Firewise Communities/USA has taken hold.

“We lost some houses a few blocks away, and the fire had actually burned around a few of my neighbors’ homes,” says Rizzo. “We never thought that could happen. This has been a real wake-up call for us.”

This winter, Rizzo and her neighbors plan to work together to make their homes safer from future wildfires.

“We’ve been talking about the improvements we can make, like eliminating vegetation, taking out low-hanging branches and brush that grows too low to the ground,” says Rizzo, who has been scouring the official Firewise Web site (www.firewise.org) for tips. “We plan to be much more aggressive about brush clearance.”

A culture change

Residents of Paradise, California, a foothill community in Butte County 90 miles north of Sacramento, are still recovering from a pair of devastating wildfires in 2001. Brenda Rightmyer, executive director of the Butte County Fire Safe Council, says that after the two fires, which destroyed some 500 homes in a community of 3,000, the culture in Butte County, one of the largest wildland/urban interfaces in California, has slowly begun to change.

“We’re definitely seeing a growing awareness about fire prevention and personal preparedness,” says Rightmyer.

Still, a mere glance at the brush-covered foothills that dominate the landscape here is enough to remind her of the vast amount of work that remains to be done.

“Fire departments have done so well in suppressing fires, vegetation is now overgrown, and that’s not natural. As people move into these areas, they have to understand that they have a responsibility [to remove it],” says Rightmyer.
The Butte County Fire Safe Council has launched an aggressive campaign to educate local residents and provide them with the tools they need to lower the risk of losing their homes to wildfires. According to Small, the Fire Safe Council is trying to provide basic education of the interaction of woody fuels and homes and personal responsibility. The council trains community members, who then work directly with their neighbors, helping them to do home evaluations and perform risk assessments. Council members even operate a chipper program for homeowners who clear vegetation from around their homes.

“We’ll come and chip at no cost to you so that you don’t have to haul or burn,” says Rightmyer.

**Changing minds—and landscapes**

Perhaps the biggest single obstacle Rightmyer and other fire-safety experts face is the mentality of homeowners who choose to live in the wildland/urban interface because they like it just the way it is: wild. Homeowners Ron and Dorothea Morgan, who live in Butte County’s Yankee Hill community, began clearing vegetation from their property after the 2001 fires.

“We knew it was the right thing to do, but we hated the way it looked,” says Ron Morgan. “The real problem is that, for most of us, we came up to the wooded areas because we like a wooded wildland area. We didn’t come up here to cut down trees and live in a park.”

His attitude underwent a serious adjustment last year, though, when the local Fire Safe Council sponsored him to attend a Firewise meeting that brought together local residents, fire-safety experts, and insurance-industry representatives. Morgan says that he came away from the meeting a changed man.

“They convinced me that if you’re going to live out here with highly resinous fuels, you have to do something,” he says. “You don’t have to clear-cut everything, but you do have to get volatile fuels away from the building.”

Last summer, the Morgans resumed clearing their

The Butte County Fire Safe Council has launched an aggressive campaign to educate local residents and provide them with the tools they need to lower the risk of losing their homes to wildfires.
brush with a vengeance.

“We cleared out 100 feet [30 meters] in one direction and 150 feet [46 meters] in the other,” says Morgan.

Morgan is now a fire-prevention activist, preaching the gospel of vegetation clearance to his friends and neighbors. It seems to be working: the Fire Safe Council recently held a presentation at the Golden Feather Seventh Day Adventist Church where Morgan is an elder.

“We were expecting 10 people to show up,” says Morgan. “Instead, we got 60 people coming to learn about fire safety.”

A carrot and a stick
Dana Cole, a division chief with the California Department of Forestry and Fire Protection in the Napa Valley, is heartened by stories like Ron Morgan’s. But he spends much of his time thinking about what to do with homeowners who won’t clear vegetation from their properties.

His department has recently begun using state-of-the-art technology to map risk areas throughout the Napa Valley. Using geographic information systems, the department is compiling data on vegetation, slope, fire department response times, and ignition histories. The result: a high-hazard, high-risk map that helps the department identify communities that are at risk from wildfires.

The next step is to undertake low-level aerial photography that will enable the department to recognize individual homes that have failed to adequately clear vegetation. Homeowners who fail the aerial exam could receive a notice in the mail.

“We can already tell the homes that need to be inspected,” notes Cole. “The question is, ‘What’s the most efficient way to do that?’ The fire-engine staff has to do it now, but the more they’re doing inspections, the less ready they are to respond to emergencies.”

Firewise Communities workshops serve as the catalyst and opportunity to demonstrate that changes can be made by collaboration between local residents and forestry officials to reduce the ignition probability of homes.
Cole dreams of the day when residents seeking homeowner’s insurance will have to meet a mandatory vegetation-clearance standard, the way they now have to pass routine home inspections.

“Unless insurance gets so expensive or is canceled, homeowners aren’t going to deal with this,” says Cole.

A Firewise future

If fire-prevention efforts in California seem advanced, it’s because they are, says Rich Schell, the chief of fire planning and engineering for the Department of Forestry and Fire Protection.

“There’s a sophistication in California,” he says. “We tend to have a better understanding of what the issues are and how to approach them.”

While Schell concedes that a great deal of education remains to be done, he is steadfast in his optimism about the future.

“Our longer-term plans are really exciting,” he says.

According to Smalley, they are planning a community planning effort using Firewise Communities concepts and NFPA standards. These and existing ordinances will take the Firewise Communities concepts to neighborhoods for mitigation and education.

For the past year and a half, Schell has helped coordinate Firewise community workshops in Southern California. The two-day workshops are increasingly focused on the most advanced safety efforts: multi-hazard mitigation planning. The goal of such planning, notes Schell, is to prepare communities to confront not just wildfires, but all kinds of disasters.

“The Firewise community workshops are focused on wildfires, but you have to look at the interlinking relationships between actions and hazards. This is a process that applies to a broad range of issues,” says Schell.

Schell is particularly encouraged by the range of community representatives who attend the Firewise workshops: insurance-industry representatives, planners, community stakeholders, real-estate developers, emergency-services personnel, even representatives from local Native American tribes. And while their interests may be diverse, even at odds, the participants are united when it comes to disaster planning.

This year, Schell and his colleagues have an even more ambitious agenda. They want to provide 100 communities in Southern California with the necessary resources to begin community-level fire planning.

Conversely, the Firewise community workshops serve as the catalyst and opportunity to demonstrate that changes can be made by collaboration between local residents and forestry officials to reduce the ignition probability of homes.

“We’ll bring together consultants who will act as facilitators and mentors to community groups,” says Schell. “This is really the next level of Firewise.”

Smoke and heat from a brush fire in the Camp Pendleton area, north of San Diego, blocks the setting sun Wednesday, October 22, 2003, in this photo taken from a location in Fallbrook, California.

Is California different?

While Southern California was burning last fall, Colorado Springs’ Firewise program coordinator Cathy Prudhomme was doing her best to tell local Colorado homeowners that they faced many of the same risks as their California counterparts.

“We tried to relay back to them that what was happening to California homeowners could happen here. We have the same fuel, the same topography, similar structures. Understanding that has really helped people here to be proactive,” says Prudhomme.

Colorado Springs homeowners who want to assess their own wildfire risk have only to visit the fire department’s Firewise Web site at http://csfd.springsgov.com. And the California wildfires inspired plenty of people to do just that, notes Prudhomme.

“You type in your address, and it will bring up your house and all of the homes around you,” she explains. “You can see your individual risk—extreme, very high, high, or low—and see how your neighbor is rated.”

Finally, for local homeowners who’ve caught the Firewise bug and are ready to clear vegetation from their land, Prudhomme and her Firewise team are prepared to supply a bit of additional assistance. In meetings with homeowner associations throughout the area, the fire-safety experts found that even residents with the best intentions weren’t always clear about the way that cleared vegetation should look.

“We show them how to do it. We’ve established two different demonstration sites so that they can visit a parcel and see for themselves. The homeowners like it,” says Prudhomme. “They say, ‘If this could reduce my risk—and it looks good—I’ll do it.’ Our approach has definitely helped to stimulate activity.”

Www.NFPAJournal.org
HOT ISSUES
The Executive Board met on Sunday, November 16, at the Fall Education Conference in Reno, Nevada. Present were Section Chair John Kampmeyer, Peter Willse of GE Global Asset Protection Services, Joe McElvaney of the City of Phoenix, and NFPA staffers Allan Fraser, John Biechman, Nancy McNabb, David Hague, and Ken Mastrullo.

The Board sponsored three programs at the conference: NFPA Adoptions: Where Are We Now and What Have We Learned; Energy Training, NFPA 900; and an overview of the IAPMO codes.

In addition, Kampmeyer appointed AEBO member Jim Peterkin, who also attended, to chair this year's nominating committee, the members of which are Mike Ashley, Tom Alexander, Sal DiCristina, and Steve Anderson. An announcement will be sent to all section members to see whether anyone is interested in becoming a candidate, and Peterkin will contact incumbents Al Comly, Jr., Joe McElvaney, and Carl Baldassarre to ask if they would like to run again. Their seats are up for election on May 25.

Also at the meeting, David Hague distributed a draft of the Fire Protection Systems Commissioning Reference Manual, which the Board is interested in seeing expanded and incorporated into NFPA 5000, Building Construction and Safety Code. Pete Willsie will initiate discussions with the BLD-STR Technical Committee, which already has a quality assurance program for the structural components in NFPA 5000. Willsie will report on his progress at the next Board meeting, tentatively scheduled for Sunday, May 23, at the NFPA World Safety Conference and Exposition (WSCE) in Salt Lake City.

The section will sponsor a number of seminars at the WSCE. Among them are a two-part update on NFPA 5000, sponsored jointly by the Building Fire Safety Systems Section, that will cover heights and areas and other changes proposed for the 2005 edition. Bonnie Manly will present an ASCE 7 primer, providing an overview of ASCE 7 for code officials, contractors, designers, and owners. In addition, Bill Koffel and Sal DiCristina will present a seminar on code language in Chapter 15, "Existing Buildings," of NFPA 5000, and Mike Ashley will lead a roundtable on the inspection process.

Bonnie Manley will also present "A Wall Is Not a Wall," a 1½-hour seminar devoted to the differences between, and uses of, fire walls, fire barrier walls, partitions, and smoke partition barriers. John Kampmeyer will discuss what first responders should know about HVAC systems in one seminar and explain how building officials, contractors, and designers should apply NFPA 900, Building Energy Code, in another. Sam Francis and three others will participate in a panel discussion about concrete, gypsum, steel, and wood used in building, and Andrew Stuffer and Allan Fraser will review the basics of developing and maintaining a records management system.

Section membership has remained at about 4,028 since last May.

HOW TO REACH US: Allan Fraser, Executive Secretary, (617) 984-7411, afraser@nfpa.org

Aviation
WEB SITE: http://www.nfpa.org/aviation
CHAIR: Dennis Kennedy, P.E., Tyco Suppression Systems

HOT ISSUES
Aircraft Fueling Concerns by MARK CONROY
Two recent incidents during the fueling of Boeing 777s should cause airports to look at their fueling policies and procedures, as well as their fueling emergency plans.

The first, which occurred in Denver on September 5, 2001, began when a hose broke away from the aircraft after the fueler had connected it. The two fueling hoses connected to the aircraft were cross-connected, and when the basket of the hydrant fueling truck was lowered, one hose broke away from the aircraft. Fuel had already begun to flow, and the ensuing fire killed the fueler.

The investigation of this fire led to several recommendations. To prevent a fuel spill, fuelers should lower the basket and stand on the pavement before allowing fuel to flow. Should the hose break while the basket is moving, no fuel will spill since none is flowing. Or fuelers should keep the basket in the "up" position once the hoses have been connected. This will prevent the hoses from ripping away from the aircraft once fuel starts to flow.

In addition, existing safeguards were re-enforced. If passengers and crew remain on board during fuel servicing, at least one additional exit must be available. The carrier should ensure that an evacuation plan is in place and a trained crew member is stationed at the exit. The flight crew should also ensure that the bumper on the loading bridge is touching the aircraft and the canopy is fully extended and fits snugly to the aircraft. This will prevent flames from entering the jet bridge during a spill fire.

Normally, wheeled dry-chemical extinguishers are strategically placed near the gates. If appropriate, properly trained ground crews can activate the emergency fuel shutoff (EFSO), call the fire department, and use the extinguishers. Ground crews should be trained to call the aircraft rescue and firefighting (ARFF) service immediately. ARFF firefighters often monitor the EFSOs and will have a plan in place if they receive a signal that an EFSO has tripped.

A fuel spill similar to the one that occurred in Denver also occurred at Atlanta's Hartsfield International Airport on
August 6, 2003. A Boeing 777 was being fueled from an underground hydrant system when the fuel hose separated from the aircraft when the basket was lowered. Fortunately, the new fueling policies prevented the fuel from flowing until the basket was completely lowered, so there was no spill and a potential disaster was averted.

Mark Conroy, a senior engineer at NFPA, handles the Aviation Project.

HOW TO REACH US: Mark Conroy, Executive Secretary, (617) 984-7410, mconroy@nfpa.org

Building Fire Safety Systems
WEB SITE: http://www.nfpa.org/bfss
CHAIR: Neal Krantz, Siemens Fire Safety, Livonia, Michigan

HOT ISSUES
WSCE Speaker Sessions
The section will sponsor several speaker sessions at the WSCE in May. From 8 to 9:30 a.m., there will be a discussion of the seismic protection requirements for buildings and sprinkler systems found in NFPA 5000™, Building Construction and Safety Code™, and NFPA 13, Installation of Sprinkler Systems.

From 10 to 11 a.m., Joe McElvany from the City of Phoenix, Bill Koffel of Koffel Associates, and Pete Wilse of Industrial Risk Insurers will address the proposed changes to NFPA 5000. They will focus on the Report on Proposals and encourage a discussion of potential comments for the Report on Comments.

And from 11:30 a.m. to 12:30 p.m., Bruce Fraser of Simplex/Grinnell will address elevator issues, including sprinkler protection of machine rooms. The section will also sponsor a booth at the exhibition.

HOW TO REACH US: David Hague, Executive Secretary, (617) 984-7452, dhague@nfpa.org

Education
WEB SITE: http://www.nfpa.org/edsection
CHAIR: Peg Carson, Carson Associates

HOT ISSUES
From the Chair by PEG CARSON
Several emerging issues deserve the section's attention as we collect information on new findings or experiences that may affect recommended practice for public educators. One is campus fire safety, about which we have co-sponsored several forums at past NFPA meetings to raise awareness and help facilitate a solution.

Tim Knisely, senior fire and housing inspector in State College, Pennsylvania, offers the following perspective on the problem of off-campus student housing. If you have any programs or methods to improve the safety of this high-risk group, please share them with us, too.

Off-Campus Student Housing: Another High-Risk Occupancy by TIM KNISELY
We often read that those at highest risk of death and injury from fire are the elderly and the very young. While this may be accurate in most towns and cities across the United States, those at highest risk in many college communities are 18- to 23-year-old students living away from home for the first time. They rarely think about, or are aware of, the risks of fire.

In a typical off-campus apartment, students may not know how to test a smoke alarm, much less that their roommate removed the battery last Tuesday after a grease fire set it off. Candles line coffee tables next to half-empty pizza boxes, incense burns to mask the odor of other burning materials. In bedrooms, tapestries and scarves cover the drap walls and ceilings—and the smoke alarms and halogen lamps.

On Thursday, Friday, or Saturday nights, the band sets up its equipment in front of an exit in the local fraternity house, while students wheel in tons of sand to set the stage for a beach party. Since there will be 400 people in a space designed for 150, it will be pretty warm, so the doors to stairways from the basement to the third floor will be left open to create a cooling draft. Beer is delivered by the skid, since kegs are banned. Fire extinguishers are removed and locked up so no one can tamper with them. Windows on the first floor are lined with newspaper or black plastic to keep the police from peeking in. And the fire alarm has already been disabled; the smoke machine at a previous party set it off, and no one wants a repeat of that little problem.

After the party winds down, residents and guests retire to their rooms or apartments, many impaired by alcohol or drugs. Others are just exhausted after a week of classes, work, and parties.

Is this the night the cigarette dropped in the trash or between the cushions of the sofa ignites? Or is it the night the overloaded extension cord overheats? Will the kitchen cabinets go up in flames because someone forgot to turn the stove off? Or will someone’s ex-boyfriend show up and light a small fire to get back at her while she’s asleep in one of the rooms?

These are questions many of us ask ourselves every weekend. Fortunately, we’re lucky most nights, and things remain quiet. For a few, though, these nightmares have become realities.

What more can we do to prevent loss of life in off-campus housing?

Through the Center for Campus Fire Safety, the U.S. Fire Administration, and NFPA, we have many resources that we can use to develop specialized programs. I encourage Education Section members with colleges or universities in their communities to get involved with these groups and network with other college fire safety professionals. Together, we can reduce the danger to those in this high-risk group and watch them mature into the leaders of tomorrow.
Tim Knisely is the senior fire and housing inspector for the Centre Region Code Administration in State College, Pennsylvania, and volunteer fire chief of the Bellefonte Fire Department.

**Board Action**
The Education Section Executive Board met on November 16, 2003, at the NFPA Fall Education Conference in Reno, Nevada, and voted to support a proposal to NFPA 5000™, *Building Construction and Safety Code™*, for residential sprinklers in one- and two-family dwellings. The Board also approved changes to the section’s five-year strategic plan and tabled proposed changes to the section Bylaws until the 2004 Fall Education Conference has been held. The proposed changes include adding a director and revising the meeting schedule.

Visit our Web page for more information about the Education Section and about contacting Executive Board members.

**HOW TO REACH US:** Judy Comoletti, Executive Secretary, (617) 984-7287, jcomoletti@nfpa.org

**Electrical**

**WEB SITE:** http://www.nfpa.org/electrical

**CHAIR:** Richard Loyd, R&N Associates

**HOT ISSUES**

**2004 Section Elections**
The Educational Section Nominating Committee has submitted its report to the Executive Secretary. Section officers, executive committee members, and nominating committee members will be elected at the Educational Section business meeting on Tuesday, May 25, at the WSCE in Salt Lake City. Nominees are:

**Officers 2004-2005**
Chair: Paul Dobrowsky, Innovative Technology Services, Holley, New York
First Vice-Chair: H. Brooke Stauffer, National Electrical Contractors Association, Bethesda, Maryland
Second Vice-Chair: James T. Pauley, Square D Company, Lexington, Kentucky
Third Vice-Chair: Michael I. Callanan, National Joint Apprenticeship and Training Committee, Upper Marlboro, Maryland

**Secretary:** Robert Baird, Independent Electrical Contractors, Alexandria, Virginia

**Executive Committee Members-at-Large 2004-2006**
Michael Johnston, International Association of Electrical Inspectors, Richardson, Texas
George Straniero, AFC Cable Systems, Inc., Freehold, New Jersey

**Nominating Committee Members-at-Large 2004-2005**
Art Black, Carmel Fire Protection Associates, Carmel-by-the-Sea Fire Department, Carmel, California
James Daly, General Cable, Upper Saddle River, New Jersey

**Codes and Standards News**
The following information on codes and standards is based on material in the December 2003 issue of NFPA News, published monthly by the NFPA Standards Administration. For the complete PDF version of this and other editions of NFPA News, visit http://www.nfpa.org/Codes/NFPANews.asp.

**Committees Seeking Members**
The committee on Electrical Systems Maintenance, responsible for NFPA 73, *Electrical Inspection Code for Existing Dwellings*, is seeking members in all interest categories, except expert special.

The Committee on Electrical Systems for Manufactured Housing is also seeking members in all interest categories, except manufacturer and enforcer. This committee is responsible for chapters in NFPA 501, *Manufactured Housing*; NFPA 501A, *Fire Safety Criteria for Manufactured Home Installations, Sites, and Communities*; and NFPA 225, *Model Manufactured Home Installation Standard*.

The Committee on Single- and Multiple-Station Alarms and Household Fire Alarm Systems, responsible for chapters in NFPA 72®, *National Fire Alarm Code®, needs members in all interest categories, except manufacturers and labor, and the Committee on Health Care Facilities-Electrical Equipment needs members in all interest categories, except users. This committee is responsible for chapters in NFPA 99, *Health Care Facilities Code*. The Committee on Health Care Facilities—Electrical Systems, which is also responsible for chapters in NFPA 99, needs members in all interest categories, except special experts.

The Committee on Static Electricity, responsible for NFPA 77, *Recommended Practice on Static Electricity*, is seeking members in all interest categories, except special expert. And finally, the Committee on Wastewater Treatment Plants needs members in all interest categories, except manufacturer and special expert. This committee is responsible for NFPA 820, *Fire Protection in Wastewater Treatment and Collection Facilities*.

**Committees Soliciting Proposals**

The committee will act on proposals received by 5 p.m. EST on those dates, and their actions will be published in the committee’s reports. Proposals must be submitted to Codes and Standards Administration on the proposal forms available in the back of all NFPA documents or from NFPA headquarters.

For information on specific committee meeting dates, contact Codes and Standards Administration at NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101. Drafts of new documents may be downloaded from www.nfpa.org/Codes/Drafts.asp. If you need a current edition of a document, please contact the NFPA Fulfillment Center at 11 Tracy Drive, Avon, MA 02322, or call (800) 344-3555.

**necforum Offers Everyone Something**
The educational program of the second necforum, to be held from May 23 to 26 at the WSCE in Salt Lake City, has been finalized, and it should prove to be one of the premier electrical educational events of the year. Programs will be arranged in four educational tracks—electrical codes, electrical safety, emerging issues, and design and maintenance—to ensure interesting programs for all those who design, install, inspect, and maintain electrical installations.
On Wednesday, May 26, necforum attendees will also be able to attend the Technical Committee Report Session, where NFPA members will vote on the report of the National Electrical Code® Committee. This is a final step in NFPA's consensus code-development process before the NFPA Standards Council votes to adopt the latest edition of the NEC®.

In addition to the technical programs, attendees are invited to a luncheon on Tuesday, May 25, and to a reception that evening hosted by the NFPA Electrical Section, necdigest®, and necforum. Those registered to attend the necforum will enjoy full registration privileges to all WSCE events and to the manufacturer's exposition that is held in conjunction with the meeting.

For a complete listing and description of these educational programs, as well as information on registering for the necforum, visit http://www.nfpa.org/ProfessionalDev/necforum/necforum.asp

HOW TO REACH US: Jeff Sargent, Executive Secretary, (617) 984-7442, jsargent@nfpa.org

Fire Science and Technology Educators
WEB SITE:
http://www.nfpa.org/firescience
CHAIR: Ronald Hopkins, Eastern Kentucky University

HOT ISSUES
2004 International Symposium on Fire Investigation
The first multinational symposium on the current state of fire investigation science, engineering, and technology will take place June 28 through 30, 2004, at the British Fire Service College in Moreton-in-Marsh, Gloucestershire, England. On-site registration and an evening reception will be held on June 27.

This will be a unique opportunity to compare and discuss techniques, procedures, and best practices from both sides of the Atlantic at a gathering of international fire investigation experts from a wide spectrum of the community.

The symposium will compare the fire investigation science, technology, and techniques of North America and Europe, with particular emphasis on the U.S. and British systems. U.S. and European speakers will make corresponding presentations, followed by a discussion among symposium participants.

The topics will include legal issues and rules of evidence, scene examination, explosion scene investigation, forensic pathology, and electrical faults as fire causes. Fire dynamics and fire science, scene management, vehicle fire investigation, and investigator training will also be discussed.

The event is co-sponsored by NFPA, the British Fire Service College, and the National Association of Fire Investigators.

NFPA Technical Committee on Fire Investigations Forum
On June 30, NFPA's Technical Committee on Fire Investigation will present the 2004 edition of NFPA 921, Guide for Fire and Explosion Investigations, in an open forum, seeking the views of the international fire investigation community on ways to improve the standard and address specific fire investigation issues.

For more information, contact the National Association of Fire Investigators.

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Attention Section Members!
The Fire Service Section will sponsor several programs during the upcoming WSCE, to be held from May 23 to 26 in Salt Lake City.

On Sunday, from 8 to 9:30 a.m., the section will present a case study of "The Urban/Wildland Interface: Mapping and Modeling Risk for Mitigation Efforts," and from 11:30 a.m. to 12:30 p.m., "Reducing Fire Apparatus Accidents: A Managerial Approach."

Four more sessions will be held on Monday. "Unifying and Integrating Command of Major Emergency Incidents" will run from 8 to 9:30 a.m.; "Real-Time Optimization of Fire Resources at Critical Incidents" will go from 10 to 11 a.m.; "Citizens and Firefighters...How They Die and How We Can Stop It" will run from 2:30 to 4 p.m.; and "Basic Emergency Preparedness Competencies for Emergency Responders" will go from 4:30 to 5:30 p.m.

On Tuesday, three more sessions will be offered. "Fire Protection Engineering Distance Learning for the Fire Service" will run from 1:30 to 2:30 p.m.; "Fire Department Officer Development" will run from 3 to 4 p.m.; and "Suburban Response to Anthrax Scares" will run from 4:30 to 5:30 p.m.

Visit www.nfpa.org for an up-to-date listing of all the sessions being offered. The Fire Service Section Executive Board will also meet in Salt Lake City. The date and time are pending.

HOW TO REACH US: Gary Tokle, Executive Secretary, (617) 984-7490, gtokle@nfpa.org

Health Care
WEB SITE: http://www.nfpa.org/healthcare
CHAIR: Richard Strub, Life Care Centers of America, Cleveland

HOT ISSUES
2003 Fall Election Results
Health Care Section members elected Thomas Salamone and Phillip Thomas directors at the section's annual meeting at the Fall Education Conference, held last November in Reno.

2004 WSCE™ Programs
The section will sponsor or co-sponsor seven educational sessions at the WSCE in Salt Lake City in May. The first, to be presented by Joe Guinello, Elliott Boxerbaum, and Rich Bielen, will cover security systems and technology in the health-care industry. The second is a three-hour codes and standards review led by Mike Daniel and Tom Bulow. Albert de Richemond of Accident and Forensic Investigation Group and David Hood of Russell Phillips and Associates will present a third session on fires in special-care areas, such as operation rooms. The fourth presentation is a town meeting, led by a panel of representatives from CMS, JCAHO, and an insurer, as well as consultants, to address hot topics and current issues.

The three final sessions will discuss wiring in health-care facilities, current code compliance issues, and safety during surgery in ambulatory facilities.

NFPA 101®, Life Safety Code®, TIAs Go to Standards Council
The NFPA Standards Council is reviewing a tentative interim amendment (TIA) to NFPA 101®, Life Safety Code®, to allow the installation of alcohol-based hand-sanitizing solutions in hospital corridors, rooms, and suites. We'll discuss the Standards Council's review in the next issue of Code Red. The next issue of Code Red will also review the Standards Council discussion at its January meeting of a TIA requiring all existing nursing homes to be sprinklered.

HOW TO REACH US: Richard Bielen, Executive Secretary, (617) 984-7279, rbielen@nfpa.org

Industrial Fire Protection
WEB SITE: http://www.nfpa.org/industrial
CHAIR: Mike Newman, Johnson & Johnson

HOT ISSUES
Chair's Corner by MIKE NEWMAN
Believe it or not, the 2004 WSCE is just around the corner. This event is the main venue at which Industrial Fire Protection Section members can interact, and we always have a full slate of activities.

The week will start with the Opening General Session, where the winner of the 2003 IFPS Fire Prevention Week contest will be announced. This contest gives the section a great opportunity to recognize those in industry for the incredible efforts they put forth during Fire Prevention Week. The energy and dedication the entrants have shown is remarkable, and picking a winner is always difficult, given the number and quality of the entries.

IFPS will also sponsor several educational sessions. These well-attended sessions are always full of valuable information. Visit www.nfpa.org for a heads-up.

As in past years, we also plan to hold the IFPS Standards Forum, which provides an update on important issues and items of interest in the codes and standards developed by committees on which IFPS is represented. IFPS members and anyone else who's interested can address the Standards Forum. You just need to let us know in advance that you'd like some time.

Another highlight of our activities at the WSCE is the IFPS annual business meeting, where members vote for officers and directors for the following year. The IFPS Board uses this opportunity to update section members on IFPS
activities and to meet new members. This is a key event, so make a point to attend!

IFPS always wants to welcome new members into the section and catch up with our existing members, a main reason for our booth in the exhibit hall. When you walk by, stop for a few minutes to say hello.

On a personal note, this will be my last WSCE as IFPS chair, but we have a great slate of officers and directors up for election who will provide the leadership needed to continue our mission.

We always look forward to hearing your ideas for improving the section, for speakers at NFPA meetings, for information on forming new chapters, and anything else that comes to mind. Contact information for section Board members can be found on the Member Section's portion of the NFPA Web site at www.nfpa.org.

2004–2005 Board Nominations
Since 2004 is an election year, it's fitting that we present the IFPS Board candidates! The positions of chair, vice-chair, and secretary are up for election, along with three director positions.

Chair: Mike Snyder, Dow Corning
Vice-Chair: Craig Remsburg, Boeing
Secretary: Tom Gray, Zurich
Past Chair: Mike Newman, Johnson & Johnson
Director: Neal Krantz, LVC Technologies (term expires 2007)
Director: Ron Stein, Aon Risk Services (term expires 2007)
Director: Joe Navarra, PEPCO Holdings (term expires 2007; to replace Rick Schartel)

The remaining positions on the Board are:
Term Expires in 2005
Mike DeVore
Dale Romme
Craig Remsburg (becomes open in 2004)

Term Expires in 2006
Terry Marski
Diane May
Christina Francis (appointed in 2003 to replace David Philip)

The Nominating Committee proposes to elect Mike Newman, chair, and Steve Daily and William Cary of the Niagara Frontier Chapter and to appoint three additional at-large members. If you're interested in joining the Nominating Committee, please contact a Board member or NFPA staff.

Calling All IFPS Members!
NFPA's Marketing and Membership Departments have been helping the IFPS gather information for a new member directory. If you'd like your name included, please visit www.nfpa.org/IFPS and opt in. We expect to have the directory available at the WSCE in May. So please take the time to opt in—and come visit the IFPS booth in Salt Lake City.

HOW TO REACH US: Guy Colonna, Executive Secretary, (617) 984-7435, gcolonna@nfpa.org

International Fire Marshals Association
WEB SITE: http://www.nfpa.org/ifma
CHAIR: John Bender, Maryland State Fire Marshal, Towson, Maryland

HOT ISSUES

Nominating Committee Report
In accordance with Article 8 of the IFMA Bylaws, the Nominating Committee submitted its nominations for the 2004 IFMA Executive Board to the Executive Secretary by November 30. The section membership will vote at IFMA's annual business meeting at the WSCE in Salt Lake City in May.

Nominees are:
President: Scott Adams, Park City, Utah, Fire Department
First Vice-President: Jon Nisja, Minnesota State Fire Marshal's Office
Second Vice-President: Jimmy Hill, Los Angeles City Fire Department
Secretary: Charles "Ed" Altizer, Virginia State Fire Marshal
Director: R.T. "Whitey" Leicht, Delaware State Fire Marshals Office (term expires May 2006)
Director: Ken Crews, Durham, North Carolina, Fire Department (term expires May 2006)

The Nominating Committee consists of Ronald Farr, IFMA immediate past president; Tony Sanfilippo, deputy director, Michigan Bureau of Construction Code and Fire Safety; and John Robison, Alabama state fire marshal.

Professional Development
The International Fire Marshals Association Fire Protection Institute currently offers two training programs, the "Management Institute for Fire Marshals" and "Principles of Fire Protection Engineering." In cooperation with the Society of Fire Protection Engineers, IFMA hopes to roll out a new course, "Evaluating Performance-Based Designs," this year. The course was designed for authorities having jurisdiction who are responsible for approving or reviewing performance-based designs. Anyone interested in attending or sponsoring a program may contact Section Executive Secretary Steven Sawyer at (617) 984-7423 or ssawyer@nfpa.org. Check www.nfpa.org/ifma for complete details.

Principles of Fire Protection Engineering Course Offerings
March 22–25, Las Vegas, Nevada
June 21–24, Parker, Colorado
September 21–24, Chicago, Illinois

And Don't Forget...
IFMA turns 100 in 2006. If you have any ideas how to celebrate the occasion, please contact Steven Sawyer at ssawyer@nfpa.org.

HOW TO REACH US: Steven Sawyer, Executive Secretary, (617) 984-7423, ssawyer@nfpa.org

Latin American
WEB SITE: http://www.nfpa.org/latinamerican
CHAIR: José Figueroa, FM Global

HOT ISSUES
Puerto Rican Delegation Visits NFPA

sawyer@nfpa.org. Anyone interested in attending or sponsoring a program may contact Section Executive Secretary Steven Sawyer at (617) 984-7423 or ssawyer@nfpa.org. Check www.nfpa.org/ifma for complete details.
Grant, assistant vice-president for Codes and Standards Administration; Martha Curtis, senior fire service specialist; Olga Caledonia, NFPA director for Latin America; and Jaime A. Moncada, director of NFPA's Spanish-language professional development programs. The topic under discussion was Puerto Rico's adoption of NFPA 101®, Life Safety Code®, and NFPA 1, Uniform Fire Code, as the basis of the new Puerto Rico Life Safety and Fire Prevention Code. Puerto Rican Governor Sila M. Calderon directed Chief Colón to update the current fire code.

Newly Translated Products
More than 60 NFPA publications are now available in Spanish. Among the latest are the LP-Gas Code Handbook; the Fire Protection Systems Inspection, Test, and Maintenance Manual; and NFPA 70E, Electrical Safety Requirements for Employee Workplaces. All of NFPA's translated materials can be obtained from www.catalogonfpa.org.

Online Registration Now Available
The 4th Annual NFPA Americas' Fire Expo (AFE) in Miami this summer will bring fire professionals from Latin America, the Caribbean, and the southeastern United States together under one roof! AFE is the region's premier showcase for fire protection products and services, and it's your entree to industry leaders who have solutions to your real-world challenges.

Registration is now available online. Register in advance, and your access to the exhibit floor is FREE! For information on registration, fees, and hotels, please visit www.nfpaamericasfire.com.

Latin American Section
The following are the current section officers and directors:

**Officers**
*Chair:* José Figueroa, FM Global, Plano, Texas; phone (972) 731-1620; fax (972) 731-1811; e-mail Jose.Figueroa@fmglobal.com

*Vice-Chair:* Rey Cartagena, Inrico, Sabanera del Rio, Gurabo, Puerto Rico; phone (787) 396-2147; fax (787) 258-4709; e-mail rey.cartagena@inrico.com

*Secretary:* Jose Luis Frias, Dhimex, Narvarte, Mexico; phone (52) 5 682-3543; fax (52) 5 536-0454; e-mail joself@prodigy.net.mx

*Past Chair:* Eduardo E. Abé, Calcic S.A., Buenos Aires, Argentina; phone (54-11) 4766-4440; fax (54-11) 4763-4188; e-mail info@calcic.com.ar

*Executive Secretary:* Olga C. Caledonia, NFPA; phone (617) 984-7231; fax (617) 984-7777; e-mail ocaledonia@nfpa.org

**Directors**
Roger Ariza, Siemens, Cerberus Division, Miramar, Florida; phone (954) 433-7328; fax (954) 433-7329; e-mail Roger.Ariza@siemens.com
Executive Committee Elections Slated for WSCE™

The section's Executive Committee will hold elections to fill six positions at the upcoming WSCE, next May in Salt Lake City. The positions are chair, vice-chair, secretary, and three directors. The recommendations of the Nominating Committee, chaired by the section's immediate past chair April Berkol, will be published before the elections. Watch the section Web page at lodging.nfpa.org for updates.

Section members interested in serving on the Executive Committee or otherwise participating in section activities are encouraged to contact Executive Secretary Gregory Harrington at lodging@nfpa.org for more information.

HOW TO REACH US: Greg Harrington, Executive Secretary, (617) 984-7471, gharrington@nfpa.org

Texas Health Department Studies Apparatus Exhaust Removal Systems

by RICHARD BRILEY, JASON CHESSHER, and CORY GRIFFITH

Last December, the Garland, Texas, Health Department studied two pipe-connected vehicle exhaust removal systems (VERS) used at Garland Fire Stations 4 and 9 to document the amount of exhaust they removed. The VERS fans' operating sound levels were also measured to determine whether they would disturb the
neighbors. The units tested were a PlymoVent system and a MagneGrip system.

Three test sequences were performed at each station to determine six air quality parameters in the ambient air of the truck bay: respirable particulate matter, total volatile organic compounds, carbon dioxide, carbon monoxide, relative humidity, and temperature. Measurements were taken 5 feet (1.5 meters) above the ground in the center of the truck bays with a P-Trak Ultrafine Particulate Counter, a Foxboro Toxic Vapor Analyzer FID/PID, and the Solomat Pro Surveyor. The noise was monitored using a Quest 1900 sound-level meter. The slow, A-weighted sound levels were recorded 50 feet (15 meters) from the exterior fan exhaust point, and wind reduction devices were used. This represented the noise humans hear when the unit operates.

The first test was conducted with the truck bay doors open. In the second test, the doors were shut, a fire engine was started, and the vehicle's exhaust removal system was attached for 10 minutes. In the third test, the same apparatus was run for 10 minutes with the bay doors closed, and the vehicle's exhaust removal system was not attached.

The air testing results indicated very little discernable difference in the contaminates' removal by the VERS. Both were equally effective at removing the respirable, ultra-fine particulates produced by diesel fuel and the associated gaseous by-products. The sound level recorded 50 feet (15 meters) from the operating exhaust fan of the MagneGrip system was 6.5 decibels (db) higher than that of the PlymoVent system, but both systems produced sound levels that would disturb neighbors in a residential setting. The Garland Health Department recommended that the systems be shielded or muffled to keep the sound levels below 50 db at the boundary of a residential zone. Where practical, the fans should be placed in such a way that the fire station deflects sound waves from the residential area.

If you have any questions about the study, please call Richard Briley at (972) 205-3460. Richard Briley is director of the Garland, Texas, Health Department, where Jason Chessher is environmental health manager and Cory Griffith is an environmental health specialist.

HOW TO REACH US: Russ Sanders, Executive Secretary, (502) 894-0411, rsanders@nfpa.org

Rail Transportation Systems
WEB SITE: http://www.nfpa.org/rail

Chair's Corner
by JAMES P. GOURLEY, P.E.

The Rail Transportation Section Executive Board needs your help in determining what you want from the section and how the Board can best provide it. The Rail Transportation Section is one of the oldest at NFPA. Section activities peaked in the early 1990s, when the Executive Board met at least annually to plan the year's activities. The section also sponsored speaker sessions at the May meeting and a booth at the exhibit. Now, however, the section is NFPA's smallest. I believe there are several reasons for this. First, the rail industry incorporates many disciplines that other sections also address, while rail-related questions may not pertain to fire or life safety.

Another reason is the switch of section activities from the WSCE in May to the Fall Education Conference in November. This made it difficult for many section members to participate due to funding restrictions by their employers.

A third reason for decreased participation, among Executive Board members in particular, is the increase in their workloads. The current Executive Board will continue to serve the section. Anyone interested in serving on the Board or helping in other ways can contact Jim Lake at jlake@nfpa.org.

RTS to Hold Meeting to Determine Section's Future

The section will hold a business meeting during the WSCE in Salt Lake City this May to establish short- and long-term business plans for section activities.

You can e-mail proposed agenda items to Section Executive Secretary James Lake at jlake@nfpa.org or fax them to (617) 984-7110 until April 1. Section Chair Jim Gourley will develop the agenda and post it on the section Web page by April 15.

We encourage you to participate in this very important meeting.

HOW TO REACH US: Jim Lake, Executive Secretary, (617) 984-7470, jlake@nfpa.org

Research
WEB SITE: http://www.nfpa.org/researchsection

Chair: Samuel Dannaway, Dannaway and Assoc., Honolulu, Hawaii

HOT ISSUES

Tunnel Fire Detection Report Issued

The first phase of The Fire Protection Research Foundation's International Road Tunnel Fire Detection Project is complete. The literature review and analysis, written by Robert Zalosh and Pichaya Chanthawut of Worcester Polytechnic Institute's Center for Fire Safety Studies, reviews fire detection technology, synthesizes major tunnel fires, and describes previous tunnel fire tests with installed fire detectors.

The literature review supports the project's technical advisory committee's development of an informed, cost-effective fire test technical plan. Later phases of the project will include laboratory and field tests in active roadway vehicle tunnels. The Research Foundation will share the project's information with interested stakeholders, including the NFPA Technical Committee on Motor Vehicle and Highway Fire Protection, which develops NFPA 502, Road Tunnels, Bridges, and Other Limited Access Highways.

Project sponsors include Sweden's Brandforsk; Detector Electronics Corporation; Edwards Systems Technology; Parsons Brinckerhoff Quade & Douglas, Inc.; Parsons Systems; Protectowire Co., Inc.; Siemens Business Technologies AG; the Swiss Institute for the Promotion of Safety &

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Security; System Sensor; and The Port Authority of New York and New Jersey.

To order the report of the first phase of this project, contact Eric Peterson at epeterson@nfpa.org or (617) 984-7281.

Research Foundation Issues Liquid-Dispensing Containers Report

The Research Foundation has also issued its final report on the Pressurized Liquid-Dispensing Containers Research Project. The report documents large-scale fire tests carried out at Southwest Research Institute’s (SWRI’s) Department of Fire Technology to evaluate the structural integrity of stainless-steel pressurized liquid-dispensing containers and the performance of their pressure-relief systems during a fire. The documentation, written by André Garabedian of SWRI’s Engineering and Research Section, will support the technical committee responsible for NFPA 45, Fire Protection for Laboratories Using Chemicals, in its deliberations over the growing use of solvent containers in industrial, pharmaceutical, and school laboratory settings.

The project was sponsored by Aventis; Bristol-Myers Squibb Co.; Eli Lilly & Co.; EMD Chemicals, Inc.; Fisher Scientific; GlaxoSmithKline; Honeywell, Burdick & Jackson; Merck & Co.; and Schering-Plough.

To order a copy of the report, contact Eric Peterson at epeterson@nfpa.org or (617) 984-7281.

Ninth Fire Risk and Hazard Research Application Symposium Scheduled

Fire protection engineers and fire prevention officers are urged to mark their calendars for The Fire Protection Research Foundation’s ninth annual Fire Risk & Hazard Assessment Symposium, to be held June 23 to 25 at the Loews Annapolis Hotel in Annapolis, Maryland.

The symposium will feature approximately 25 presentations by researchers and practitioners on fire toxicity issues, fire and the environment, and new laboratory capabilities and resources. Attendees will receive professional development contact hours, and a wallet service will be available for organizations wishing to distribute literature to attendees.

For more information, contact Eric Peterson at epeterson@nfpa.org or (617) 984-7281.

HOW TO REACH US: John Hall, Executive Secretary, (617) 984-7460, jhall@nfpa.org

Wildland Fire Management

WEB SITE: http://www.nfpa.org/wildland

CHAIR: Bill Terry, USDA Forest Service

Wildland Fire Management Section

The following is a list of current section officers and directors:

Officers
Chair: Bill Terry, 201 14th Street SW, Washington, DC 20090; phone (202) 205-1488; fax (202) 205-1272; e-mail bterry@fs.fed.us
First Vice-Chair: Lewis Blair, Cullman Electric Motor, Inc., 1420 Sportsman Lake Road, Cullman, Alabama 35055; phone (256) 734-9490; fax (256) 734-9491; e-mail Lblair2@prodigy.net
Second Vice-Chair: Rich Schell, California Department of Forestry and Fire Protection, P.O. Box 944246, Sacramento, California 94244-2460; phone (916) 653-7472; cell phone (916) 712-5660; fax (916) 653-8951; e-mail rich.schell@fire.ca.gov
Secretary: Nancy Porter, USDA Forest Service, 16351 NE Thompson Street, Portland, Oregon 97230; phone (503) 408-6313; fax (503) 408-6313; e-mail nporter@fs.fed.us
Past Chair: Maggie Doherty, USDA Forest Service, HC-31 Box 3200, Seeley Lake, Montana 59868; phone (406) 677-2233; fax (406) 677-3902; e-mail mdoherty@fs.fed.us
Executive Secretary: Jim Smalley, NFPA, Quincy, Massachusetts; phone (617) 770-3000; fax (617) 770-0700 or 984-7056; e-mail jsmalley@nfpa.org

Directors
Eastern Director: Gary Wood, North Carolina Division of Forest Resources, Griffith’s Forestry Center, 2411 Old U.S. 70 West, Clayton, North Carolina 27520; phone (919) 553-6178, ext. 225; fax (919) 553-4486; e-mail Gary.Wood@ncmail.net
Central Director: Open
Western Director: Tom Johnston, Canadian Interagency Forest Fire Centre, 210-301 Weston Street, Winnipeg, Manitoba R3E 3H4 Canada; phone (204) 784-2030; fax (204) 956-2398; e-mail operations@ciffc.ca; Web site www.ciffc.ca
Director-at-Large: Mike Long, Division of Forestry, 3125 Conner Boulevard, Tallahassee, Florida 32399-1650; phone (850) 488-4274; fax (850) 488-0863; e-mail longm@doacs.state.fl.us

2004-2006 Officer Nominations
Chair: Bill Terry, USFS, Washington, DC
First Vice-Chair: Lewis Blair, West Point, Montana
Second Vice-Chair: Jim Langhorne, Montecito, California
Secretary: Nancy Porter, USFS, Portland, Oregon
Director for Canada: Tom Johnston, Canadian Interagency Forest Fire Centre, Winnipeg, Manitoba, Canada
Eastern Director: Gary Wood, North Carolina Division of Forest Resources, Clayton, North Carolina
Central Director: Deputy Chief Jerome Harvey, Lead, South Dakota, Fire Department
Western Director: Bill Mills, Colorado Springs, Colorado
Director-at-Large: Mike Long, Florida Division Forestry, Tallahassee, Florida
Past Chair: Maggie Doherty, USFS, Seeley Lake, Montana

HOW TO REACH US: Jim Smalley, Executive Secretary, (617) 984-7483, jsmalley@nfpa.org

Section News online is members-only

On March 5, the news pages of NFPA’s section Web site became an exclusive member benefit. Non-members may still learn about section goals and benefits, but only NFPA members can access their section’s news updates online.
SOFTWARE SOLUTION
Fire Control Instruments announces version 6.1 of its Windows-based Field Configuration Program (FCP-7100) and System Operating Software (SOS) for the 7100 Series fire alarm control panel. The 7100 Series is a feature-packed, multiprocessor-based, analog-addressable fire control panel system. The basic 7100 Series control panel provides two analog-addressable signaling line circuits, each supporting up to 99 analog-addressable sensors and up to 98 addressable monitor modules and/or control points.

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ALARM CONTROL PANEL
Fire-Lite Alarms' MS-9600 addressable fire alarm control panel adds flexibility with its optional Digital Alarm Communicator Transmitter (DACT-UD) 14.4K Baud modem, and two additional Notification Appliance Circuits. The DACT-UD option provides users with remote site upload/download and remote monitoring capabilities. These capabilities allow life-safety system managers to upload vital programming information directly to the control panel and download this information from the panel to a local PC. For information, visit www.firelite.com.

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SOFTWARE
Raytheon JPS Communications has extended its line of radio interoperability products to include support for wide area interoperability systems (WAIS). Designated the WAIS Controller, this software product is designed to seamlessly connect JPS interoperability systems over local area networks (LAN), wide area networks (WAN), or the Internet. For more information, visit www.jps.com.

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AED PROTECTION
Helping to assure AED units are readily available, Safety Technology International, Inc. is working to make that possible. Our customers have made requests for a clear polycarbonate enclosure to house AED units, and we’ve met the challenge with our AED Damage Stopper®. For information, visit www.sti-usa.com.
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SPECIALIZED STORAGE
Clandestine Lab Waste Building for the safe storage, processing, and reporting of hazardous drug byproducts seized during drug raids is manufactured by Safety Storage, Inc. These SSI buildings store drug wastes for regular removal by licensed special waste haulers and disposal at EPA-regulated hazardous-material waste sites.
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Director of Government Relations
International Assn. of Arson Investigators

Networking:
Tap into a wealth of knowledge by networking with code experts, industry leaders, and a global audience of over 8,000 of your peers. Speak with over 250 industry suppliers and view the latest technology they have to offer on display at our EXPOSITION.

New Experiences:
Since hosting the 2002 Olympics, Salt Lake has become a premiere destination of the American West. This beautiful city offers a wide variety of restaurants to match any taste, as well as numerous dance clubs, sports bars, brewpubs and jazz clubs. The surrounding area offers a wealth of activities including golf, shopping, hiking, biking, and sightseeing. With outstanding educational sessions during the day and boundless entertainment options at night, the World Safety Conference and Exposition in Salt Lake will not disappoint!

Bill Bradley, former U.S. Senator, professional athlete, best-selling author, and inspiring orator, will deliver the keynote address during Sunday's general session. As one of the nation's most respected politicians, Bradley offers an inside perspective on the state of American politics, foreign and domestic policy, the economy, and the ever-accelerating rate of change in technology and business.

Tony Snow, host of Fox News Channel's "Weekend Live with Tony Snow," will deliver the keynote address at Tuesday's general session. Mr. Snow offers audiences rich new insights into the relationship between the press and the president, reveals the chaotic roots of governmental procedure, and chases the shadows from the dark corridors of power. He reveals Washington from the inside out, with candor, humor and insight.

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Uponor Wirsbo’s proPANEL™ comfort management series was recently awarded first place in recognition of industry innovation in the heating and ventilation category at the International Sanitation and Heating North America (ISH NA) trade show.

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CONTROL SYSTEM

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CONTROL PANEL
Silent Knight, part of Honeywell’s Fire Systems Group, offers industry-wide compatible fire alarm solutions for small to mid-size institutions and commercial sites. Silent Knight will feature the Farenhyt IFP-100 at the NFPA World Safety Conference & Exposition, Booth 1200, May 23-26 in Salt Lake City, UT. The Farenhyt IFP-100 is a new system that combines Silent Knight’s powerful analog/addressable devices together with a cost-effective control panel. The IFP-100 has the features and capabilities to make it the best value in analog/addressable control panels available today. For more information, visit www.silentknight.com.
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FLOW-SWITCH TESTER
System Sensor’s Zonecheck® is a self-contained inline flow-switch tester system that recirculates water within a fire sprinkler system, ensuring the flow switch is operating properly. Available for both retrofit and new construction applications. For more information, visit www.systemsensor.com.
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EDUCATIONAL VIDEO
Underwriters Laboratories, Inc. (UL), has produced a video to help fire professionals promote office evacuation and workplace fire safety messages. “Your Office Fire” is available from UL’s Web site, www.ul.com/firevideos.
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ENCLOSURE
A new super-tough, see-through polycarbonate enclosure introduced by Safety Technology International, Inc. offers excellent protection, as well as immediate access, for fire alarm control panels installed externally. The STI Clear & Accessible Control Panel Protector guards against vandalism, either accidental or intentional, as well as dirt, dust, and grime. For more information, visit www.sti-usa.com.

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Circle Reader Service Card No. 113

Product Advisory
6" Series 756 & Series 758
FireLock Actuated Valves

If you own or service a 6" Series 756 dry or Series 758 pre-action or deluge valve with a manufacturing date of 6/99, 7/99 or 8/99, please be aware of this advisory.

Victaulic has determined that some 6" FireLock Actuated Valves manufactured in June, July and August of 1999 may have been supplied with a latch shaft made of carbon steel instead of stainless steel, as required.

The carbon steel latch shaft in 6" 6/99, 7/99 or 8/99 date of manufacture valves can impede or delay the rotation of the latch, which reduces the speed that water enters the system.

Please contact the Victaulic Company's Fire Protection Customer Care at: 1-800-742-5842.
hotel reservations as early as possible. Hotels will fill up fast, and the negotiated conference room rates will only be available until April 30. The WSCE headquarters hotels are the luxurious Grand America and Little America, offering attendees special rates of $129 to $159 per night. Networking and other special events will take place at both hotels throughout the conference. The easiest way to make your room reservations is online at www.nfpa.org/meetings.

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NFPA 13, Installation of Sprinkler Systems

**Grinnell Glass Disc Automatic Sprinkler (section).**

**Grinnell Open Cornice Sprinkler.** Shovel pattern.

**Cross Section of Hill Sprinkler.**

**Hill Automatic Sprinkler** (closed). Pendant pattern.

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