

# nfpa JOURNAL

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BUILDING, & LIFE SAFETY INFORMATION

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ISTS AND FIRE  
SAFETY ADVOCATES  
LOCKED IN DEBATE

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MATCHING THE  
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MARCH/APRIL 2003

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## Nightclub tragedies underscore the need for safety improvements

**THE WORLD LEARNED IN HORROR** last month of the multiple fatalities at two U.S. nightclubs: 97 killed in West Warwick, Rhode Island, when fire trapped concert-goers, and 21 in Chicago when patrons caused a crowd crush fleeing pepper spray used to break up a fight. It is hard to believe that these events have taken place in the beginning of the 21st century in one of the richest nations in the world and devastating to see what their huge toll has been on human life.

I have called for an immediate meeting of NFPA's Technical Committee on Assembly Occupancies to review safety in public assembly buildings, in light of these incidents. Preventing future tragedies must be front and center. Over the last century, great gains in building design, including fire protection, have reduced overall fires, fire fatalities and injuries, as well as fatalities and injuries in events like Chicago's. But West Warwick and Chicago tell us we have not done enough. The time to ratchet up building safety is now.

All the core components that make up a total system of building safety need to be examined in light of these incidents. Minimum thresholds for requiring automatic fire sprinkler protection, allowable interior finish and decorations, and adequate egress must be considered. Exiting arrangements, retroactive application of code requirements, and inspection and permitting activities must also be critically examined.

NFPA has always rapidly incorporated lessons learned following significant fires throughout the last century. On countless occasions, our codes and standards have been the impetus for needed reforms nationally and worldwide.

The application and enforcement of these codes and standards have saved countless lives. But those responsible for updating codes and standards as well as the enforcement community must learn from and respond to these tragedies. Sixty years after the Coconut Grove fire in Boston, the deadliest nightclub fire in U.S. history, the loss of 97 lives in an overcrowded nightclub with flammable interior finish is just not acceptable.

Jim Shannon  
NFPA President & CEO



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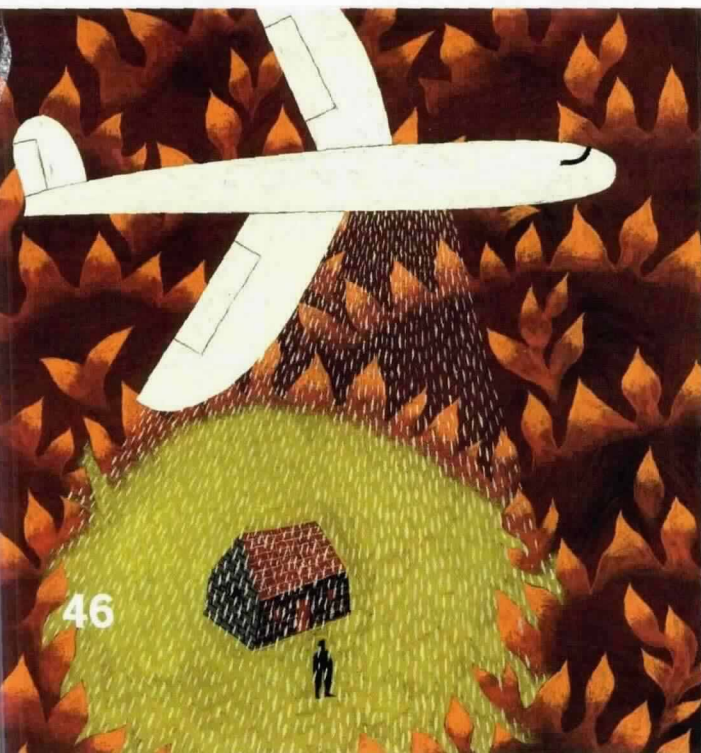
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NFPA has been a worldwide leader in providing fire, electrical, building, and life safety to the public since 1896. The mission of the international nonprofit organization is to reduce the worldwide burden of fire and other hazards on the quality of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

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**ANYONE WHO ENJOYS** visiting the wildlands of the United States can probably tell at least one tale about a benign hike in the woods that suddenly brought them back in touch with the realities of nature. On more than one occasion, I have begun a hike in the White Mountains of New Hampshire on a warm spring day, only to find myself fighting through a snowstorm an hour or two later.



Many of the thousands of Americans who choose to live in areas abutting our nation's wildlands have also learned that, along with the beautiful views and peaceful surroundings, comes the threat of wildfire engulfing their communities. This problem has gotten a lot of attention recently, as droughts in the West continue to contribute to large, deadly wildfires.

For years, NFPA has worked hard on the special fire problems of those areas where wildlands and development intersect. Since 1986, NFPA has had a cooperative agreement with the USDA Forest Service to develop and implement fire protection and prevention programs to reduce the nation's wildfire losses. That relationship grew into the National Wildland/Urban

Interface Fire Protection Program, sponsored by the Forest Service, the Department of the Interior, the U.S. Fire Administration, the National Association of State Foresters, and NFPA.

Out of that relationship, a new public-private partnership, The National Firewise Communities/USA Recognition Program, was launched. On behalf of NFPA, I signed an agreement last November with the Forest

days are becoming annual events.

This community leadership is central to the program's success. By creating a framework in which fire and emergency management officials work with concerned citizens, communities most at risk from wildfire can put plans in place to deal with one. That means that the more involved a community is, the more lives will be saved and property preserved.

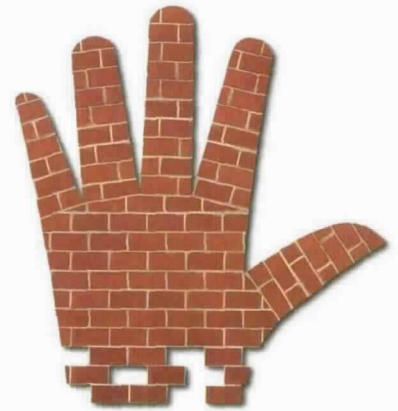
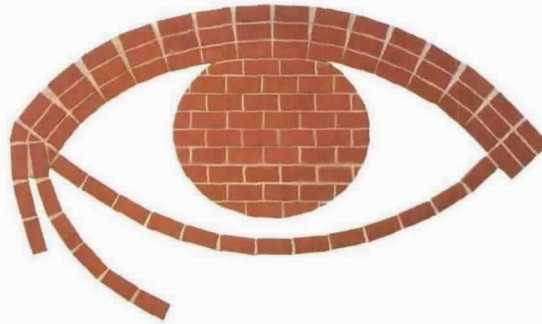
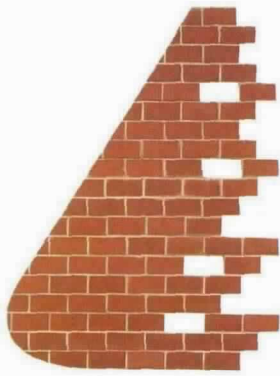
## Making wildfire prevention a life safety priority

Service and the National Association of State Foresters to promote and encourage this innovative program, which encourages communities to develop local solutions to unwanted wildfire. Through the Firewise Communities/USA Program, NFPA and its partners educate Americans about wildfires and help communities develop programs tailored to their needs.

The Firewise Communities/USA Program projects vary from community to community. In Briargate, Florida, for example, the program was used to develop strategies that will help the community avoid a repeat of problems faced when wildfires hit the area in 1998. A million-gallon (3,785,344-liter) water tank is now available for fighting fires, dirt from excavated lakes was used to establish firebreaks, and pine forests have been thinned. At River Bluff Ranch, near Spokane, Washington, roads have been improved, utilities are now underground, and covenants require fire-resistant roofing, deep side-yard setbacks, and the maintenance of defensible space. And in Sundance, Utah, spring and fall chipper/clean-out

We can't change the laws of nature. Wildfires will continue to shape and reshape our environment. But that doesn't mean we should withdraw from wildland areas. It does mean that we must take special steps to live responsibly in those areas, to protect both the environment and ourselves. That's what the Firewise Communities/USA Program is all about, and that's why we at NFPA are proud to be involved with it.

**James M. Shannon**  
President, NFPA



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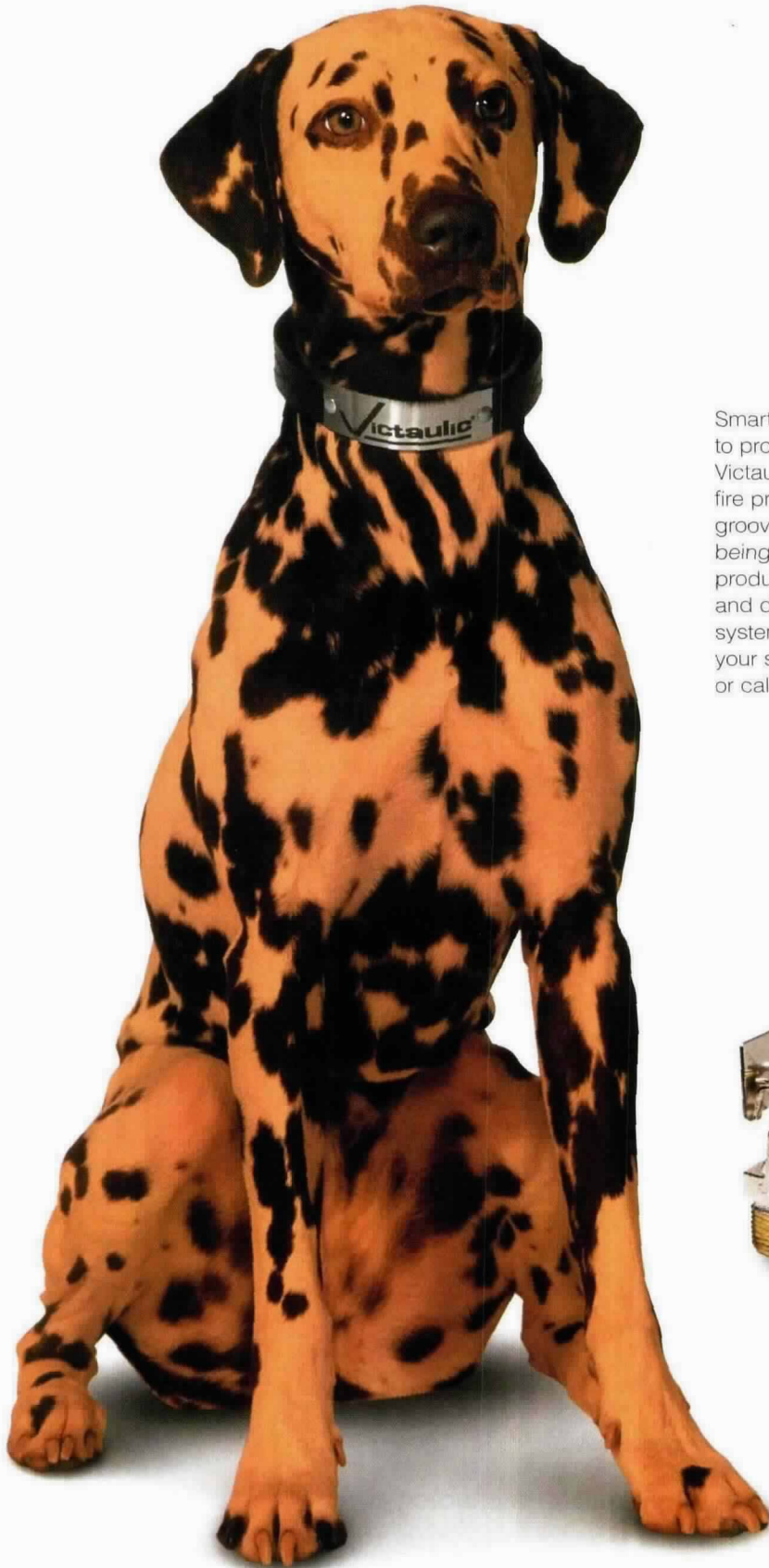


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## HARD TO ARGUE AGAINST

It's encouraging to be hearing calls from many quarters for patience and conservativeness when it comes to evaluating building code effectiveness in light of the 9/11 tragedies. All too often, there are knee-jerk regulatory reactions to tragedy, often well-intended, that do little to achieve the objective but are hard to argue against.

Perhaps the single most effective outcome of the review by NIST and other agencies might be added attention to the need for performance-based designs for certain signature buildings and occupancies, not necessarily just high-rises. To impart increased fire-endurance requirements unilaterally for all buildings within certain construction types and classes really doesn't advance the purposes of modern construction codes. Further, this one-size-fits-all approach may actually hinder adoption of enhanced fire and life safety code provisions for those occupancies and buildings where it is needed most.

The discussion of the proposed enhancements to the CIBC Building ["Build-by-Numbers," January/February 2003 issue] appears to be at least a rudimentary performance-based design approach, targeting building systems and design/construction strategies to anticipated loads and hazards. Building and fire code officials need to prepare ourselves for the advent of performance-based design if we are to credibly meet, assess, and overcome twenty-first-century challenges to the built environment.

### Gary Lewis

Construction Official  
City of Summit, New Jersey

## KEEP UP THE GOOD WORK

I have been reading, enjoying, using, and accessing information in the *NFPA Journal* since I became a fire prevention officer in 1992. The information and articles are excellent, and I rely on the *Journal* to keep up to date with statistics, new ideas and concepts, and new equipment.

Thanks for making my job easier and for being an excellent fire service resource.

### Dave MacMullen

Senior Fire Protection Officer  
Belleville Fire Department  
Ontario, Canada

## THE BIGGEST OBSTACLE NFPA HAS EVER FACED?

The January/February 2003 issue of *NFPA Journal* focuses on a perceived peril to the status quo: a court case that may (or may not) threaten the NFPA cash flow. Describing the time-honored paradigm, James M. Shannon, our president, asserts: "The public gets the best the public and private sectors have to offer in protection, and the government is relieved of the burden and cost of developing these crucial materials themselves. And all of us reap the benefit of the standardization that's so important, not just to protect the public but to keep the U.S. economy strong."

The first phrase is simply untrue. The fact is that technology has far outstripped current codes. American manufacturers have been unwilling to expend development funds to apply these technologies to life and safety systems; their existing systems meet the codes, and they can subvert code enhancements. For example, video, computer, and wireless technologies are virtually ignored in both NFPA 70 and NFPA 72, and in supplemental test requirements, such as UL 864. Nevertheless, they offer capabilities far exceeding those described (or permitted) in U.S. codes and are generally accommodated in other countries. Therefore, the American public is least protected among industrialized nations.

This is not to say that code-development organizations have outlived their usefulness. On the contrary, they are utterly essential in an era of burgeoning technology: without them, the public is at grave risk.

Perhaps it is time to take a new approach to code development: it may be time to recognize that the public has a right to free access to the codes. Further, codes need to be written in sufficiently general terms accommodate expanding technology while applying language that promotes the public safety. Although this is a daunting task, it is

possible for an organization willing to innovate, cooperate, and collaborate. Is NFPA such an organization?

### David S. Kelly

Principal Engineer  
Two's Company  
San Diego, California  
TwosCompany@aol.com

## BRIGHT FUTURE FOR AFFF

Your September 2002 online exclusive featured an article entitled "The Future of AFFF" by David R. Hague, P.E. The point of the article seems to be that the future for ongoing use of aqueous film forming foam (AFFF) is highly questionable. In fact, this is not the case, and we consider the future of AFFF to be bright. Mr. Hague's conclusion appears to be based on a surprising failure to distinguish between electrochemical fluorination (ECF) and telomerization, which are two completely different methods used to produce the fluorosurfactants contained in AFFF.

ECF-based AFFF agents contained perfluorooctyl sulfonate (PFOS), which is classified as persistent, bioaccumulative, and toxic. They also contained varying amounts of perfluorooctanoic acid (PFOA). PFOS is being phased out. EPA has issued a revised draft hazard assessment of PFOA and its salts and has also initiated a priority review to determine whether or not PFOA meets the criteria for action under section 4(f) of the Toxic Substances Control Act.

Telomer-based AFFF agents aren't made with PFOS or PFOA, and don't contain PFOS or any PFOA-based products. Telomerization is a completely different process from electrochemical fluorination. PFOA is an 8-carbon molecule. Over 75 percent of fluorosurfactants used in telomer-based AFFF are derived from 6-carbon molecules. We are not aware of any pathway for the fluorosurfactants used in AFFF to break down, under any circumstances, into PFOA.

In conclusion, as Mr. Hague points out, "the future seems to rest with telomerization." This future is considerably brighter

than Mr. Hague's article may suggest.

**Thomas A. Cortina**  
 Executive Director  
 Fire Fighting Foam Coalition

**2001 FIRE LOSS AND LARGE-LOSS REPORTS**

I look forward to receiving the *NFPA Journal* and use a lot of the information that the issues contain. I've just received the November/December 2002 issue, and...I would just like to offer the following comment.

One of the articles is the annual report of fire losses/large losses that occurred during the previous calendar year. This article comes out annually and is usually published in the September/October issue. I use the information as a component of the Fire Prevention Week activities. However, this year the article came out too late for the 2002 activities. I'd...suggest...[publishing] this annual article...before Fire Prevention Week so that the data could be again used for fire educational purposes.

**John Devine**  
 John.Devine2@med.va.gov

**NFPA RESPONDS:**

We're very pleased that you use the annual U.S. fire loss study as part of your Fire Prevention Week activities. We aim to support you in that effort.

This year, a special project NFPA undertook for the U.S. Fire Administration to assess the needs of the U.S. fire service forced us to move the U.S. fire loss and firefighter injury studies back an issue, to keep that very large survey project on schedule. When you see the results of our needs assessment, which is available at [www.nfpa.org/research](http://www.nfpa.org/research), I think you'll agree it was worth the delay to get that important project done right.

This year, knowing the *NFPA Journal* article would be delayed, we put a lot of information from the U.S. fire loss study out well before Fire Prevention Week in our general press release and on the NFPA web site. In the future, we expect to use these two outlets even more frequently, using all of NFPA's communications channels to serve your needs the best way possible. Thanks for your interest.

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**Dr. John R. Hall, Jr.**  
Assistant Vice-President  
Fire Analysis and Research

### IT MUST BE TRUE

NFPA is a world-recognized authority on items related to fire safety. There is a general feeling that, if NFPA says something, then it must be true. The field of fire investigation is no exception to this rule.

In the "Firewatch" section of the September/October 2002 edition of *NFPA Journal*, there were some reports of fire causes that leave me with more questions than answers. In Minnesota, a candle in a metal holder ignited nearby combustibles; in Maryland, a cigarette ignited asphalt shingles; and in Kentucky, a pot of water left on the stove resulted in a fatal house fire. Obviously, I don't have enough data to say the causes, as stated, are right or wrong, but I can say they are unusual.

How did the flames leave the metal candleholder? Did a breeze blow a curtain over the flame? If Underwriters Laboratories tests asphalt shingles with burning brands, how can a cigarette cause ignition? If a pot of water runs dry, the pot may melt, but how does the empty pan cause the flames to spread beyond the stove burner?

The answers to the above questions are important because defense attorneys read these articles. To prove an arson case in court, the fire official will normally show that no other cause of the fire was possible. The above cases may be cited as examples that the fire official must now eliminate, since NFPA has officially reported them as potential fire causes.

If a proven fire cause is unusual or unfamiliar to the fire community, then that cause is worthy of an article of its own. If cigarettes can ignite asphalt shingles, Underwriters Laboratories needs to think about revising the appropriate standard for safety. If a pot of water on a stove is capable of starting a house fire, a new fire safety program is needed to inform the public of this hazard.

**Bernard A. Schwartz, P.E., CFI**  
Day, Maryland



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The image shows the software interface for TOLBrace. It features a blue background with a white seismic waveform. There are several technical drawings and tables overlaid on the interface, including one titled 'Seismic Bracing Calculation' and another titled 'Seismic Loadings'. The interface appears to be a professional engineering tool.

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## NFPA RESPONDS:

We develop "Firewatch" using information provided by the fire authorities and other official sources in the jurisdictions in which the fires occur. In some cases, these official reports omit steps in the sequence of causal factors. In others, they contain several observations describing the event in slightly different ways. Because, we can't always conclusively determine every link in the chain of events leading to the fire, we prefer not to speculate about what happened and include only what can be reasonably substantiated.

You asked some specific questions about three incidents, and these questions seem to contain assumptions in themselves. A metal candleholder may hold the base of the candle, but not shield the flame in any way. If the candle is knocked over or melts unevenly and falls, or if the flame is simply too close to something combustible, a fire can result. When a pot is allowed to boil over until empty, it becomes much hotter, and the heat can ignite nearby combustibles. In the Maryland case, officials speculated that there was wood debris and sawdust on the roof, as such debris had been found on a similar building. This debris would have ignited more easily than asphalt and could have served as an intermediate fuel. However, the fire would have destroyed the debris, making it hard to establish whether it did, in fact, exist and contribute to the fire.

"Firewatch" is intended to illustrate the many types of fires that can occur and the circumstances that may lead up to them. It isn't meant to supply complete descriptions of all possible factors involved in an incident.

### Marty Ahrens

Fire Analysis Specialist  
NFPA Fire Analysis and Research

## LACKING AIRPORT SECURITY PERSPECTIVE

As a safety professional employed at O'Hare International Airport, I was quite interested to read the article "Safety in Airport Terminals," [September/October 2002 issue]. I found the article informative, but lacking from a security perspective. The article touches on emergency evacuation, but doesn't discuss special security consid-



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erations that need to be taken into account should an evacuation be activated. While each emergency evacuation will typically be dynamic, depending on the type of emergency, certain security precautions must be taken into consideration.

Should the emergency require immediate action and evacuation from the secured portion of the terminal to the airfield itself, a plan should include staging areas and equipment to keep the evacuees safe from the extremely busy airfield activities, including taxiing aircraft, while also assuring that each individual is accounted for and doesn't have the opportunity to wander away into the most secure portions of the airport. Such situations require clearly defined emergency evacuation plans specific to those areas of the terminal operation and separate from the overall emergency evacuation plans associated with other portions of the terminal operation, such as the...landside portion of the facility.

Experience has taught us at O'Hare that the complexity of terminal operations and evacuations...require a team approach in order to develop such evacuation plans. Sections represented in the development and implementation of such plans should include local police and fire [departments], federal security agencies, the tenant airlines, airport facilities, airfield operations, and customer service. When each of these organizations provides its unique expertise and experiences, a carefully developed evacuation plan will emerge, further enhancing safety in airport terminals.

**Edward R. LeFevour, CPP**  
Director of Safety  
O'Hare International Airport  
Chicago, Illinois

## ERRATA

In the January/February 2003 issue, the Fact and Fallacy information in the Structural Ops column was incorrect. It should have read "Fact: Use only the apparatus necessary to meet tactical objectives. Fallacy: All apparatus at the scene should be operating."

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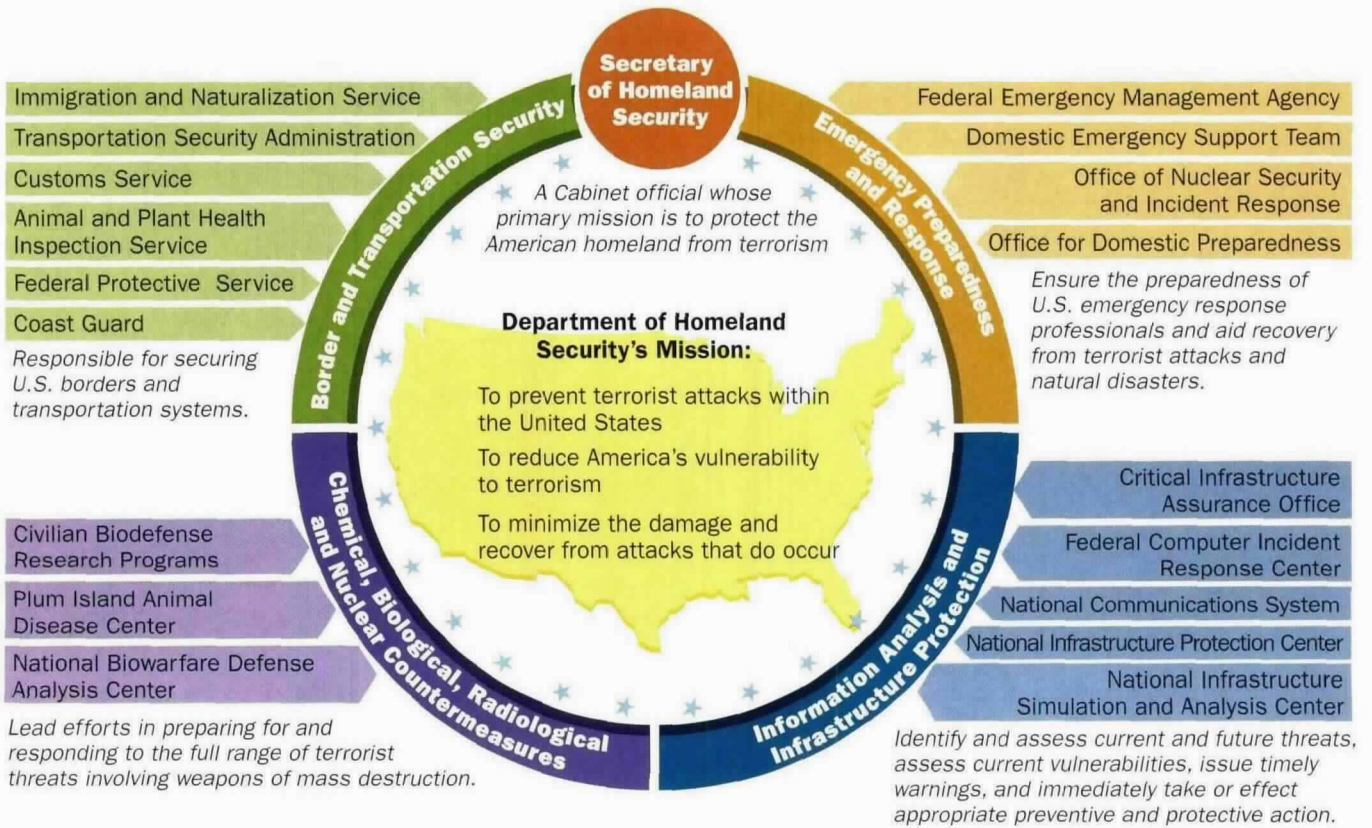


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## Organization of the Department of Homeland Security



## Fire service and Homeland Security

by JOHN NICHOLSON

"FIREFIGHTERS HAVE LONG recognized their role in protecting our nation against threats of all magnitude and will continue to serve on the front lines against future attacks. No matter what the final configuration of the complete national response plan to terrorism, the fire service and other first responders will always be first to arrive at the scene."

With this statement as an underlying theme, NFPA and other fire service organizations produced a position paper, in anticipation of the new Department of Homeland Security, that called on Congress and the administration to consider four fire-service factors when developing the department.

1. The Federal Emergency Management Agency must be at the core of the Department of Homeland Security. According to the organizations, this guiding principle must "manifest itself during the planning and development of a new department. To achieve this end, it's imperative that the fire and emergency service has significant representation at the table throughout the entire planning process."

2. First responders are fire and rescue, emergency medical services and law enforcement personnel. This definition, the organizations state, will determine the distribution of federal funds to local, state, and federal response agencies.

3. Fire departments must have adequate staffing levels and continuous training. In addition, training and equipment must conform to nationally recognized, voluntary consensus standards, such as NFPA's, where such standards exist.

4. The importance of communications to public safety isn't limited to on-scene communications, but also encompasses access to intelligence data on possible terrorist threats/attacks, additional spectrum for interoperability of radio systems, and new technologies that track the positions of firefighters inside buildings.

These are components that Congress and the administration are considering as they lay the groundwork for this new federal agency. 🗡️



A construction crew installing a storm drain at an intersection was trying to find a bypass valve when the valve's flange cover ruptured, which led to a natural gas fire. There were no injuries, but the explosion damaged 10 structures and 21 vehicles.

## SPECIAL

### Ruptured gas main damages buildings

#### OHIO

A construction crew installing a storm drain at an intersection was trying to find a bypass valve near a 24-inch (61-centimeter) water main when the valve's flange cover ruptured, forcing water high into the air. Water continued to flow from the water main for more than three hours, eventually eroding the earthen foundation of other utilities, including a 20-inch (51-centimeter) natural gas line. When the unsupported gas line separated at a mechanical coupling, the pressurized gas and water mixture came into contact with equipment

on a nearby utility pole, igniting a huge fireball at 3:34 p.m.

Fortunately, the fire department was already at the scene, and firefighters used several engine and ladder companies to protect exposed buildings. They also positioned hand lines around the excavation until the gas was shut off about 15 minutes after the explosion. The water was eventually shut down at 6:30 p.m., nearly seven hours after the break occurred.

There were no injuries, but the explosion damaged 10 structures and 21 vehicles, as well as the road, several traffic lights and utility poles, and electrical, cable, and fiber optic lines.

Total losses were estimated at \$1.5 million.

### Sparks from train ignite brush

#### MASSACHUSETTS

Fanned by high winds, a wildfire that began when sparks from the brakes of a passing train ignited railroad ties and dry brush along the tracks consumed 15 acres (6 hectares) before firefighters could bring it under control. Access to the site was extremely limited, allowing the fire to burn for some time before firefighters, alerted by a cell phone call from a passerby at 11:43 a.m., could reach it. When they finally arrived, they had to call in water tankers and stretch long hose lines into the woods before they could start

operations.

There were no structural losses, and no one was injured fighting the blaze.

## ASSEMBLY

### Suppression systems extinguish cooking fire

#### WISCONSIN

Cooking oil left unattended in a wok on a restaurant's gas stove overheated and ignited. Fortunately, the restaurant's full-coverage, wet-pipe sprinkler system and the wet-chemical hood operated, extinguishing the fire and limiting damage.

The restaurant, which was 80 feet (24 meters) long and 20 feet (6 meters) wide, occupied part of a single-story strip mall that had wood and masonry walls and a steel-framed roof cov-



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ered by a built-up metal deck. The restaurant's sprinkler system waterflow alarm was monitored. At the time of the fire, the restaurant hadn't yet opened for business.

The fire department received a water flow alarm at 10:13 a.m., and responding crews found the restaurant filled with black smoke. Firefighters advanced a hose line through the unlocked front door, and worked their way towards the rear of the restaurant, where they found that the extinguishing systems had put the fire out before it could spread to the ductwork or the roof. Firefighters shut down the single sprinkler that had operated and performed salvage operations.

Investigators determined that the blaze began when the chef left the restaurant to go to the bank, leaving the oil-filled wok heating on the stove. The fire was confined to the stove and its hood system, and there were no injuries.

## HEALTHCARE

### No filters delay activation

#### NEW JERSEY

A hospital cafeteria worker discovered a fire in a deep-fat fryer in the cafeteria about 45 minutes after the fryer was turned on. Fortunately, a sprinkler activated, preventing the blaze from spreading.

The steel-framed building, which was occupied at the time of the fire, had concrete walls and floors, and a metal roof covered with a built-up rubber membrane. The hospital was fully sprinklered, and a

central station alarm company monitored the system's waterflow alarm. In addition, a dry-chemical extinguishing system protected the cafeteria's cooking area.

The worker who discovered the fire used the manual pull station to activate the dry-chemical system, and the sprinkler activated shortly afterward. By the time firefighters arrived, the hospital's security staff had extinguished the blaze with portable fire extinguishers.

Investigators determined that the filters in the hood over the fryer were missing, preventing heat from building up and activating the dry-chemical extinguishing system.

Damage estimates weren't included in the fire department's incident report. There were no injuries.

## RESIDENTIAL

### Candle ignites fatal fire

#### MICHIGAN

A 24-year-old man died in a fire that apparently began when a candle he left burning on a wooden shelf in his basement bedroom ignited wooden wall paneling after he fell asleep. The early-morning fire burned undetected until another member of the family on the first floor smelled smoke. The single-family home's two smoke alarms failed to activate because their batteries were dead.

The exterior of the two-story, wood-frame building was partially faced with brick, and the roof was covered with asphalt shingles. In addition to the bedrooms in the basement and on the

first floor, there was a master bedroom on the second floor.

Firefighters responding to a 3:27 a.m. telephone call reporting the fire noted smoke coming from a side door and saw the blaze burning in the basement through a window. They mounted an interior attack and began searching the basement for the victim, whom they discovered on a mattress on his bedroom floor. He was taken to the hospital, where he later died.

Discovering the remains of a candleholder, a candle, and the shelf, which had been attached to the wall enclosing the stairs to the first floor, the fire investigator determined that the candle ignited the wall paneling, and the resulting fire burned through the wall to the stairwell. He concluded that the location of the unapproved basement bedroom, with its single path of egress, and the non-functioning smoke alarms, which failed to provide early warning of the fire, directly contributed to the victim's death.

Three occupants escaped unharmed. Property damage to the dwelling, valued at \$175,000, came to \$45,000, while damage to its contents, valued at \$100,000, was estimated at \$25,000.

### Winds spread fire

#### PENNSYLVANIA

An incendiary fire within the center unit of five connected row homes spread to all dwellings and to four exposures, as high winds fanned flames. The fire

started in a vacant dwelling and was heavily involved before being observed by a passerby. The fire department fought the fire using 34 pieces of fire apparatus and 95 firefighters.

The row houses were constructed of wood framing with asphalt-shingled roofs, the exterior siding was a faux brick product except for one end unit that had real brick exterior. The unit where the fire occurred was vacant and did not contain any fire detection equipment or sprinklers.

A passerby saw the fire and called the fire department at 2:46 a.m. to report the fire. Command was first to arrive within five minutes of the alarm and began to order companies to lay feeder lines down streets and advance multiple hose lines to protect exposures. A second alarm was called for within 10 minutes of arrival and a third alarm 13 minutes later, as fire had crossed the street and was now burning another group of similarly built-row houses. The fire was primarily fought defensively as high winds fanned flames and helped spread the fire.

In total, nine homes were heavily damaged as structural losses were estimated at \$200,000 and contents losses of \$250,000. Two firefighters suffered minor injuries including a twisted ankle and a broken arm. Six civilians were also hurt but their injuries were not reported.

### Sprinklers control fire

#### WASHINGTON

After seeing smoke coming from a second-floor dryer



Fire started in this vacant dwelling and was heavily involved before the fire department arrived.

vent of a three-story apartment building, a police patrolman alerted the building's occupants and notified the fire department at 10:38 p.m. He then retrieved the portable fire extinguisher from his cruiser and was using it on the flames com-

ing from the dryer's open door when a sprinkler activated. By the time firefighters arrived, the patrolman and the sprinkler system had extinguished the fire.

The 12-unit, wood-frame apartment building, one of

13 in the complex, was 135 feet (41 meters) long and 35 feet (10.6 meters) wide. Each apartment had a local smoke alarm, and there were smoke detectors and manual pull stations in the common areas. The building was also protected by a

residential, wet-pipe sprinkler system, and fire extinguishers were located throughout. The detection and suppression systems were monitored by a central station alarm company, which called the fire department when the water flow alarm activated in the unit of origin.

The fire began when clothes, towels, and other items the apartment's occupant was drying ignited after the occupant went to bed. It was the fourth fire in the apartment complex the sprinkler system controlled or extinguished, and a fire department spokesman noted that, without the sprinklers, the blaze could have been serious. As it was, damage to the \$450,000 structure was estimated at just \$5,000, and damage to the apartment's contents, valued at \$20,000, came to \$2,000.

## Heater ignites bedding MISSOURI

Firefighters quickly extinguished a fire in a two-story boarding house that began when an electric space heater in a second-floor room ignited the bedding. Once it began, the fire spread throughout the room and into the hallway before fire crews brought it under control using hose lines.

Although smoke alarms had been installed at the bottom of the stairs on the first floor and in a bedroom on the second floor, the fire was discovered before they operated.

The fire department received the alarm at 7:52 a.m., and firefighters arrived four minutes later

PHOTOGRAPH: NFPA



Excessive heat from a worn bearing or fan belt motor is, according to investigators, the most likely cause of this processing plant fire.

to find smoke and flames coming from a second-floor window. Crews advanced several hose lines to the second floor, which was filled with heavy smoke, and brought the blaze under control in 10 minutes. They then began opening walls and ceilings to check for fire extension. They also searched for trapped occupants, although several bedroom doors were locked, making the job difficult. However, the closed doors did limit fire damage, which was estimated at \$75,000.

No one was injured, and two cats firefighters rescued were reunited with their owners.

**Overheated electric motor ignites fire**  
**MARYLAND**

An early-morning fire that started on a second-floor balcony heavily damaged a three-story apartment building as it spread to adjacent apartments and the attic. The wood-frame building,

which had 14 units and an asphalt-shingled roof, was un-sprinklered, but all the units had smoke alarms.

A neighbor noticed the fire and called 911 at 4:30 a.m. By the time firefighters arrived, flames had spread into several apartments, up the exterior of the building, and into the attic. Fire companies immediately began a defensive attack of the top floor and roof, both of which were heavily involved in fire.

Investigators later determined that the fire began when a refrigerator on a balcony ignited when its motor seized. No one was injured, although the fire did \$2 million in structural damage and destroyed \$500,000 worth of contents. The building and its contents were originally valued at \$6 million.

**MERCANTILE**  
**Arcing ballast ignites rafters**  
**MISSOURI**

When an antique shop manager discovered smoke

and flames coming from a ceiling light fixture, he initially tried to fight the fire instead of calling the fire department. Finding he was unable to control the flames, he finally dialed 911 at 10:17 a.m.

The store was in a two-story, wood-frame building with brick exterior walls. The building, which was 150 feet (46 meters) long and 75 feet (23 meters) wide, was un-sprinklered, but it did have local battery-operated smoke alarms. The shop was open when the fire broke out.

Firefighters responding to the 911 call reported light smoke showing outside the building when they arrived. When they entered the store, however, they discovered that the second floor was filled with heavy smoke. As interior crews pulled ceilings to locate the fire, another crew went to the roof. Additional apparatus were staged in defensive positions until firefighters brought the fire under con-

trol some 30 minutes later using two 1 3/4-inch hose lines.

The fire began when the ballast of a fluorescent light on the second floor arced, igniting paper-backed insulation. The fire spread above the suspended ceiling to the roof's wooden rafters, doing \$50,000 damage to the \$500,000 building and another \$50,000 damage to its contents, estimated to be worth \$1 million. There were no injuries.

**STORAGE**  
**Sprinklers control fire in unoccupied warehouse**  
**MASSACHUSETTS**

An automotive parts warehouse was spared significant damage when a single sprinkler operated, controlling a fire that began when cardboard boxes stored too close to a propane gas-fired ceiling heater ignited. The central station alarm company that monitored the sprinkler system alerted the fire

department at 5:37 a.m.

The steel-framed warehouse, which had metal walls and a metal roof, was 200 feet (61 meters) long, 150 feet (46 meters) wide, and 23 feet (7 meters) high.

Firefighters arrived within eight minutes of the water flow alarm to find heavy smoke along one side of the building near an overhead door. When they entered the building, they discovered a small fire atop a storage rack holding cardboard boxes of automotive parts on wooden pallets. They extinguished the remaining flames with two 1 1/2-inch hose lines.

Damage to the property, valued at \$567,000, was estimated at \$20,000, and damage to its contents was estimated at of \$60,000. There were no injuries.

## MANUFACTURING

### Fire in peanut roaster damages plant VIRGINIA

Unable to detect a fire in a 100-foot (30-meter) peanut roaster assembly line after a carbon dioxide total-flooding system activated, employees of a food processing plant reset the system, thus allowing the fire to reignite with explosive energy shortly after the line was restarted.

The single-story plant, which also contained a cold storage warehouse, had concrete block walls and a lightweight, metal-truss roof covered with metal. It was 250 feet (76 meters) long and 60 feet (18 meters) wide, and had a 42-foot (13-meter) ceiling studded with fiberglass skylights. The

building's dry-pipe sprinkler system was disconnected in 1998 when the carbon dioxide total-flooding system was installed to upgrade the processing line's fire protection system.

The fire began in a long mechanical oven in which 250,000 to 300,000 pounds (113,396 to 136,075 kilos) of peanuts, stacked about 6 inches (15 centimeters) deep, were being roasted. The fire alarm followed a pop and a hiss, and shortly afterward, the carbon dioxide system discharged, shutting down all the machinery and the exhaust systems.

When the manager checked the line and found no smoke or fire, he ordered employees to reset the fire alarm system and restart the line. Almost immediately, smoke became visible, and an inspection door blew open with explosive force. Grabbing portable fire extinguishers and a garden hose with an injection nozzle, employees tried unsuccessfully to put it out.

Someone called 911 at 5:13 p.m., and firefighters arrived within a minute to find smoke coming from all sides of the building. They advanced hose lines into the processing area and quickly extinguished the fire there, but the blaze had already spread to a series of hoppers, which also became involved. As a ladder and rescue company helped vent the roof, crews used small front-end loaders to remove the smoldering debris from the building to wet it down and extinguish the fire.

Investigators noted that the total flooding system initially controlled the fire, but restarting the production line so quickly after the system activated allowed the extinguishing agent to escape before it cooled the smoldering line enough to prevent reignition.

One firefighter was injured while working on a catwalk above the processing area. Damage to the building, valued at \$2 million, came to \$250,000, while damage to its contents, also valued of \$2 million, came to \$1.25 million.

## MERCANTILE

### Fire damages clothing store OHIO

Discarded smoking materials started a fire in the basement of a second-hand clothing and household goods store, and smoke spreading up an open stairwell and through openings made to accommodate the building's support columns filled the building. Although the store had a no-smoking policy, employees questioned after the blaze said people did smoke in the basement and elsewhere in the building.

The one-story store was the anchor of a nine-store shopping mall covering an area of 30,000 square feet (2,787 square meters). Its exterior walls were made of concrete block, and two layers of concrete sandwiched its wooden floor joists. A wet-pipe sprinkler system provided partial protection in the basement only.

The fire department received the alarm at 11:15 a.m., and responding fire-

fighters found light smoke filling the first floor. However, visibility in the basement had been reduced to zero. Fortunately the fire wasn't producing much heat.

Firefighters were sent into the basement in rotation to locate the seat of the fire, but the basement's configuration and the many items stored there thwarted their efforts. To make operations more difficult, the sprinkler system rendered a high-expansion foam system brought in by a mutual-aid company ineffective. Finally, fearing that the floor would collapse, the incident commander ordered everyone out of the building for a defensive attack. Firefighters using several hose lines eventually extinguished the blaze after they breached a masonry wall and directed water into the basement and the voids.

Investigators discovered that fire damage in the area protected by the sprinkler system was minor. However, the remaining areas were heavily damaged. The fire, which began in an unsprinklered portion of the basement where employees had established several informal smoking areas, probably began when abandoned smoking materials ignited stored goods. Investigators also discovered that two fire doors were ajar in a storage room.

**KENNETH J. TREMBLAY** is a technical project assistant with Firewise Communities and a career lieutenant with the Lexington, Massachusetts, Fire Department.

# MEETINGS

WITH KEYNOTE speakers sure to enthrall, new educational sessions, and an enhanced exhibition, the 2003 NFPA World Safety Conference and Exposition™, to be held at the Dallas Convention Center in Dallas, Texas, from May 18 to May 21, will be a memorable event.

joint task force in the Grenada student rescue operation. Author of the best-selling autobiography "It Doesn't Take a Hero," General Schwarzkopf is active in numerous charitable activities and conservation issues.

In addition, more than 120 education sessions will bring together fire

planned a session dedicated to distance learning in fire protection, which will describe ways to acquire fire safety knowledge from experienced leaders in the field. Presentations include the latest information on distance learning programs from NFPA, the National Fire Academy, the Society of Fire Protection Engineers, Worcester Polytechnic Institute, and the University of Maryland.

For the complete list of education sessions, visit [www.nfpa.org/meetings](http://www.nfpa.org/meetings).

## Playing Hardball in Dallas

Chris Matthews of MSNBC's "Hardball with Chris Matthews" will open the 2003 event on Sunday, May 18, at the Opening General Session. Matthews, who has distinguished himself as a television news anchor, journalist, presidential speechwriter, congressional staffer, and best-selling author is sure to deliver a memorable and relevant speech.



Chris Matthews and Gen. Norman Schwarzkopf.

General H. Norman Schwarzkopf will discuss leadership in difficult times on Tuesday, May 20, 11 a.m. General Schwarzkopf discusses universal principles of leadership and how they apply in all walks of life. Additionally, he'll emphasize how basic principles of leadership apply in this time of national crisis.

His presentation, "Leadership in Difficult Times," defines the universal principles of leadership and how they apply to every aspect of one's life. During his 35 years of service in the U.S. military, General Schwarzkopf was awarded many honors, including three Silver Stars, three Bronze Stars, two Purple Hearts and the Presidential Medal of Freedom. He also served two combat tours in Vietnam and was deputy commander of the

protection and life safety experts from around the world to discuss factors that will advance many of today's life safety measures. With 10 tracks, ranging from the new telecommunications and data network protection track to the firefighting operations/emergency management, safety in buildings, and fire prevention tracks, the conference offers vast educational opportunities for all attendees.

Among the sessions are "Media Account Analysis of World Trade Center Survivors," "Office of Homeland Security—The Fire Service's Role," "Assessing Your Organization's Security-Related Risks," "Modeling of Natural Catastrophe and Terrorism Exposures," and "Bioterrorism: Debugging the Problem." We've also

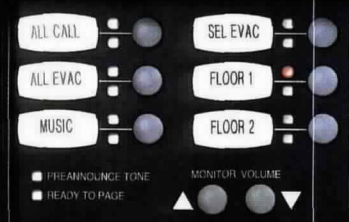
The new World Safety Conference and Exposition schedule will enable attendees and exhibitors alike to take advantage of all aspects of the 2003 program, from the keynote presentations to the education sessions, without missing the exposition. The expo will run on Sunday from 4:30 p.m. to 6:30 p.m. with the Grand Opening Reception, on Monday from 10:30 a.m. to 3:30

p.m. with lunch, and on Tuesday from 8 a.m. to 11 a.m. with the new Tuesday Breakfast Expo.

Dallas is a great location for this year's NFPA World Safety Conference and Exposition, and the recently remodeled convention center will be a terrific venue. Complimentary transportation from the surrounding NFPA convention hotels will bring you to the new Exhibit Hall A/B lobby.

So don't wait—register now. For more information on education sessions, sponsorship opportunities, registration, and exhibiting, visit [www.nfpa.org/meetings](http://www.nfpa.org/meetings) or call (617) 984-7310. See you in Dallas! ♣

**BRIAN BENSTOCK** is NFPA's exposition marketing manager.



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# BUILDING TO CODE

A **DOMINANT GOAL** of NFPA 5000™, *Building Construction and Safety Code*™, is ensuring that building occupants are safe from fire, and its provisions for fire-resistance-rated construction play a key role in helping code officials and authorities having jurisdiction (AHJs) reach this target.

Chapter 5 details eight design scenarios.

Prescriptive requirements for fire-resistance-rated construction can be found both in the code's core chapters and in the specific occupancy chapters. Buildings with mixed or multiple occupancies may be divided either vertically or horizontally into

that type of construction.

The code also allows builders to use compartmentation to achieve the fire safety goal. When required by the code, buildings must be divided into compartments to limit the spread of fire and to restrict the spread of fire and smoke beyond the compartment

## Fire-resistance-rated construction provisions within NFPA 5000

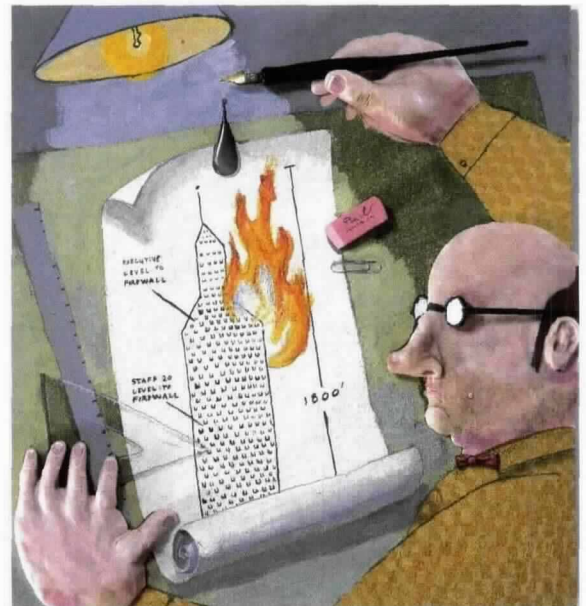
The code's fire safety goal has two specific and distinct parts, as stated in Section 4.1.3.1.1. The first says that we should provide those in or near a building with an environment that's reasonably safe from fire and similar emergencies. The second part instructs AHJs to provide a reasonable degree of safety for firefighters and emergency responders who might have to enter burning buildings to conduct search and rescue operations.

To accomplish these goals, Section 4.1.3.1.2 provides four objectives. First, buildings must protect occupants who aren't intimate with the initial fire development for as long as they need to evacuate, relocate, or defend themselves in place. Buildings must also provide firefighters and emergency responders with a reasonable degree of safety during search and rescue operations, and reasonably protect people near it from injury and death and adjacent buildings from substantial damage during a fire. Finally, buildings shall provide emergency responders with a reasonable means of access.

NFPA 5000 presents two ways to meet these goals and objectives: prescriptive provisions or performance-based requirements, for which Section 5.5.2 of

separate occupancies by fire-resistance-rated construction. The resistance ratings for most occupancy separations can be found in Table 6.2.4.1, "Required Fire Resistance-Rated Separations for Separated Occupancies." In mixed occupancies, the means of egress, type of construction protection, and other building safeguards usually have to comply with the most restrictive fire and life safety requirements for the occupancies involved.

The code views the materials used to construct a building and the degree of fire resistance associated with the construction in combination to determine how large and how tall the building can be. Table 7.2.2 provides the fire-resistance-rating requirements for all five construction types NFPA 5000 allows and specifies fire-resistance-rating requirements for exterior and interior walls, columns, beams, girders, trusses, floors, and roofs. When there are two or more types of construction in the same building, the entire structure must be classified by its type of construction and if it meets the requirements for



of fire origin. Compartments can be formed by fire barrier walls, horizontal assemblies, or both, and the fire-resistance ratings of fire barrier walls, structural elements, and building assemblies can be determined using prescriptive requirements or the analytical methods outlined in Chapter 8. Specific requirements for rating fire barriers and building assemblies can be found in both core and occupancy chapters. For protection of openings in fire-resistance-rated assemblies, refer to Table 8.7.2.

Another tool designers can use to achieve fire safety is the firewall,

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# HEADSUP

THERE'S A LONG HISTORY of competition and conflict between advocates of active protection in the form of automatic suppression systems and advocates of passive protection in the form of fire resistance and compartmentation of buildings. The

tems in buildings actually predates fire-resistance ratings, which weren't introduced until 1927 with the publication of the Uniform Building Code. Allowances that enable designers to substitute automatic sprinklers for some degree of fire resistance, either

tial installations remote from the point of fire origin were to be handled.

NFIRS Version 5.0, implemented with the 1999 collection of fire data, promises to provide better data if it's used correctly. The revised system

## Determining how well sprinklers can work

advocates of active protection claim that fire resistance may protect buildings, but it doesn't address the real problem of burning contents, which can produce an oven-like atmosphere that can lead to flashover and deliver lethal products of combustion far beyond the immediate fire area. Advocates of passive protection, on the other hand, argue that we rely too much on mechanical systems that could fail during a fire, drastically increasing the potential for loss.

There are even those who suggest that the collapse of the World Trade Center following the 2001 terrorist attacks demonstrates the folly of allowing automatic sprinkler protection to substitute for passive fire resistance. This argument is fundamentally flawed, however. No protection concessions were made to sprinklers when the World Trade Center was built in the early 1970s, since it wasn't retrofitted with sprinkler protection until the 1980s. In any case, the debate over the structural integrity of signature buildings of this type, while legitimate, has questionable application to the multitude of buildings constructed each year under the ordinary provisions of the building codes.

The use of automatic sprinkler sys-



directly or by using larger building areas for a given construction type, are now well-established. An automatic fire suppression system that can successfully detect fire and apply sufficient suppressant is credited with the ability to automatically suppress fire, therefore satisfying the code's fire-safety objective. These construction alternatives, variously termed "trade-offs" or "trade-ups," represent an institutionalized form of performance-based building regulations.

This brings us back to the issue of reliability, which we can best address by collecting valid statistics. In the United States, past data reporting about sprinklers using NFIRS (National Fire Incident Reporting System) was limited. No detail was provided on the extent of sprinkler coverage, and it wasn't clear how par-

more specifically asks whether a system was present in the area of fire origin and whether it was designed to extinguish the fire that developed. If multiple types of extinguishing systems are present, it asks about the system designed to protect the hazard found in the area in which the fire started.

And the section on operation and effectiveness now provides six choices: the system operated and was effective, the system operated but was not effective, fire too small to activate the system, system didn't operate, other, and undetermined.

Version 5.0 also asks how many sprinklers operated, which should provide good information on the relative size of the fire and an additional check on system effectiveness. In the event the system is reported to have "failed to operate or did not operate properly," various codes are available to describe the perceived basis of the problem.

As with the older version of NFIRS, certain areas require judgment. The decision as to whether a fire was large enough to activate a sprinkler system is particularly difficult. While a wastepaper basket fire might be expected to activate a residential sprinkler under a low ceiling, it would

>>page 93

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# STRUCTURAL OPS

ALTHOUGH THE BASIC tactics and strategic objectives used in high-rise fire-fighting are the same as those used to fight any other structure fire, the logistics of personnel and equipment deployment to the fire is somewhat more complicated. This is where staging comes in.

position on a hose line because their air supply is limited. For example, a four-person fire company operating a 2½-inch (64-millimeter) line on the fire floor will exhaust its air in approximately 15 minutes.

Even when elevators are available for fire department use, interior staging

If using the elevator isn't an option, however, at least one firefighter should be placed on every other floor to shuttle equipment up through the building to the interior staging area. Using this method of "stairway support," firefighters carry air cylinders and other equipment up two stories, where

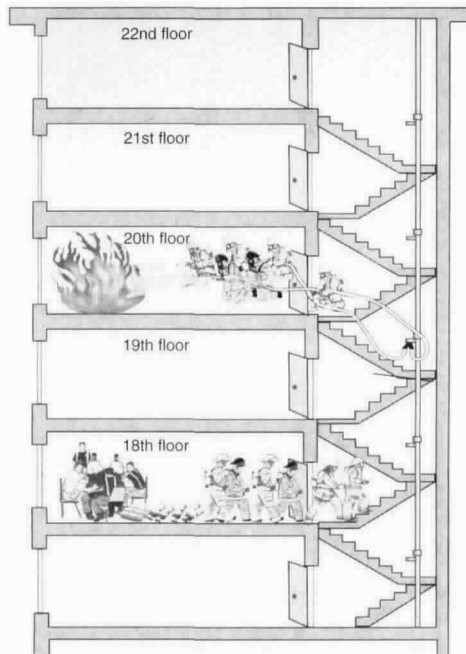
## Staging and stairway support help you manage logistics during a high-rise fire

We've discussed the advantages of staging as a management tool at structure fires, and staging for fires that occur on the lower levels of a high-rise building will probably be the same as that used at any other structure fire. That is, firefighters will be stationed at their apparatus a few blocks from the building. When a fire occurs on the upper levels of a high-rise, however, exterior staging doesn't provide an immediately available tactical reserve. This is only available if interior staging is used.

When fighting fires on the upper floors of a high-rise building, the tactical reserve force moves through the lobby to an interior staging area two or more floors below the fire. To ensure the continuous operation of an attack line on the fire floor, a fresh crew must always be in the ready position in staging, which requires a continuous cycle of attack, rehab, and staging assignments.

After a fresh unit from the staging area has relieved an attack crew, it reports to the rehab officer, who makes sure crew members are rested and rehydrated in a rehabilitation area set up either at the staging area or on another floor. Once the crew is rested, it reports to the interior staging officer and prepares to relieve the current attack crew.

During an extended operation, three firefighters may be needed for each



shortens the time needed to relieve deployed companies and to move additional forces into critical positions.

### Moving equipment

Equipment is usually positioned in the interior staging area, as well, since it will have to be moved to the fire area and beyond. The easiest way to move air cylinders, hoses, nozzles, first-aid supplies, forcible entry tools, and other materials to the interior staging area is in the elevators. Carrying supplies 10, 20, 30, or more stories is an arduous task.

another firefighter picks it up and carries it up two more floors. The firefighters then descend two stories empty-handed, providing a rest period.

Depending on conditions in the stairwell, personnel assigned to stairway support may be able to work without SCBA and turnout gear, which will allow them to conserve their energy and transport the equipment faster. Experience indicates that wearing rubber boots while climbing stairs is particularly fatiguing.

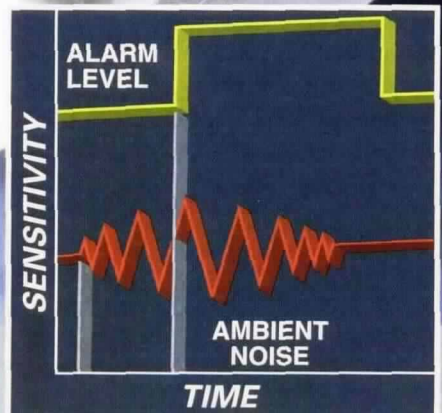
Always err on the side of caution, however. If there's any chance those assigned to stairway support will encounter smoke or other hazardous conditions, they should be required to wear appropriate protective gear. During extended operations or in situations in which firefighters must wear full protective clothing, it may be necessary to assign stairway support on every floor. It may also become necessary to recycle air cylinders to the street level to be refilled.

Stairway support is labor-intensive and requires planning, training, and discipline. But it's a proven method of safely moving equipment to an interior staging area several floors above the street when the elevators can't be used. 🔥

RUSS SANDERS and BEN KLAENE are authors of the book *Structural Fire Fighting*.



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# JUSTASK

WITHIN THE LAST few years, codes for historic buildings have become a popular topic in the code world. But NFPA's been involved in the protection of historic structures since 1940, when the forerunner of the current Technical Committee on the Protection of Cultural Resources was formed. The 2001 edition of NFPA 914, *Fire Protection in*

first code of its type to give the user a choice between a performance-based design approach and the traditional prescriptive approach.

#### Why does this make a difference?

Many "archaic" construction materials and methods either haven't been tested to, or don't meet, today's code require-

ing with current codes, but they don't provide any other guidance or requirements for protecting them. We know from fire data that many historic buildings are lost every year for the lack of a viable code. Jurisdictions adopting NFPA 914 have a code that allows them to upgrade the fire protection and safety of historic buildings without compromising the buildings' uniqueness. A companion document, NFPA 909, *Protection of Cultural Resources*, provides requirements for historic contents or those that are part of our heritage in libraries, museums, and places of worship, whether or not the structures themselves are historic.

## NFPA 914 upgrades the fire protection of historic buildings without compromising their uniqueness

*Historic Structures*, is the most recent and comprehensive document on the subject yet.

#### What's the purpose of NFPA 914?

NFPA 914 helps those responsible for historic buildings provide fire protection and life safety systems while protecting the elements, spaces, and features that make these structures historically or architecturally significant.

#### What does it cover?

NFPA 914 describes fire safety requirements for the protection of historic structures and for those who operate, use, or visit them. It addresses the construction, protection, operational, and occupancy features necessary to minimize danger to life, structures, and contents from the effects of fire, including smoke, heat, and fumes, while maintaining the historic fabric and integrity of the building.

#### How is NFPA 914 different from other building codes?

In general terms, NFPA 914 is unique with regard to its level of detail. It's the

ments. However, historic buildings have proven, by the test of time, that they're safe to a point. NFPA 914 gives the designer, owner, and authority having jurisdiction a process they can use to evaluate each building or project on its own merits and develop an approach that increases the structure's safety without destroying its historic fabric.

#### Who develops these specialized technical requirements?

NFPA's Technical Committee on the Protection of Cultural Resources, the members of which are involved daily with historic structures as part of their jobs. Among these are representatives of the Smithsonian Institution, the National Gallery, the Library of Congress, Colonial Williamsburg, the J. Paul Getty Trust, the National Park Service, Kent State University, the National Library of Scotland, the Schoenbrunn Palace in Vienna, and the Italian Ministry of Fire Safety and Regulation.

#### Why is this document so important?

Many permit-issuing jurisdictions simply exempt historic structures from comply-

#### What else does NFPA 914 provide?

The document has a wealth of support information in the 13 annexes, including a 213-page list of fire ratings for archaic building materials, explanatory material, and information on major fires in historic structures. There's also a guideline for the risk assessment process, information on compact storage fires, a fire-safety inspection checklist, a fire system maintenance checklist, discussion of fire and fire protection system basics, and additional resources. All this information is geared toward educating designers, owners, code officials, operators, and others who work on, with, or in historic structures.

#### How can I use NFPA 914 in my area?

NFPA 914 usually has to be legally adopted by the state, county, or municipal legislative body covering your area before you can take full advantage of it. The adoption process varies, but your local building department or fire department can help you get information on implementing this very special code. 🖱️

ALLAN B. FRASER is an NFPA Senior Building Code Specialist.

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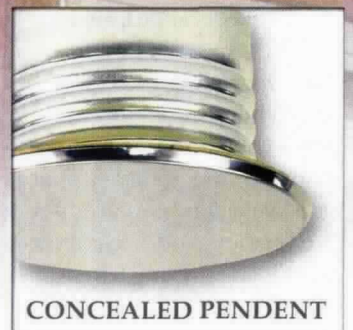
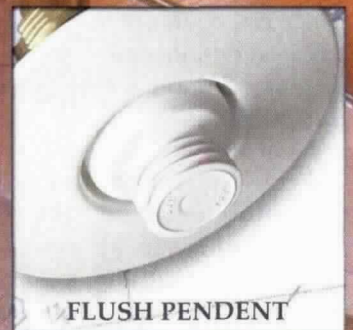
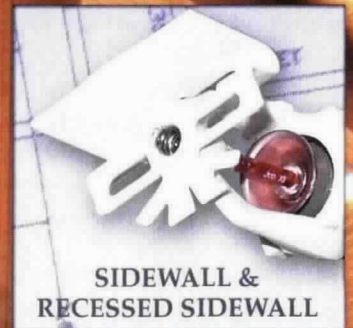
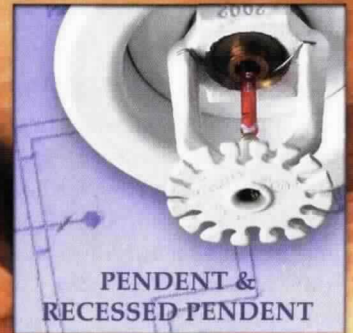
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# INCOMPLIANCE

**IT'S IMPORTANT TO UNDERSTAND** how a particular fire-resistive assembly is to be used before you can make sure it's properly designed and constructed. Some building elements may be for structural fire resistance, some may be used for fire barriers, and others used for both structural fire resistance and fire barriers.

Fire resistance is a measure of the time an assembly or material has withstood a standard fire exposure as specified in NFPA 251, *Tests of Fire Endurance of Building Construction and Materials*, also known as ASTM E119, *Standard Test Method of Fire Tests of Building Construction and Materials*. Examples of construction assemblies



speed at which a flame will travel across the surface of a material, such as a wall or ceiling. It isn't related to the fire resistance of that wall or ceiling. For example, a masonry wall may have a two-hour fire-resistance rating, but the same masonry wall covered in cheap wood paneling may have an unacceptable flame-spread rating.

Fire-resistive barriers may be required in a building to stop fire spread within the structure, or they may be required for exterior walls to prevent fire from spreading from one building to

## Fire-resistive construction and codes

that have been tested for fire resistance can be found in several publications, including Underwriters Laboratories, Inc.'s *Fire Resistance Directory*.

Some assemblies, such as walls or columns supporting other floors or a roof, provide structural fire resistance. In this case, we aren't concerned about stopping a fire from moving through the wall. We simply want the wall to remain intact so it will continue to carry its required structural load. Other types of fire-resistive assemblies, such as fire barriers, are installed to stop a fire from spreading into or within a building. When this is the case, we aren't concerned about the wall's structural load-carrying ability. Still other fire-resistive assemblies are used as both fire barriers and fire-resistive, structural load-carrying assemblies.

Building construction types, such as those described in NFPA 220, *Types of Building Construction*, or Chapter 7 of NFPA 5000™, *Building Construction*

and *Safety Code*™, are based on structural fire resistance. Other codes and sections of NFPA 5000 may require internal fire barriers—that is, compartmentation. Still other code requirements may address fire separations between buildings.

When an assembly is used as a fire barrier, all its penetrations must be protected with fire protection-rated assemblies, such as fire doors and fire windows. Ducts must be fitted with fire dampers, seismic joints must have fire protection-rated joint systems, and cables and piping must be provided with through-penetration firestop systems. Notice the change in language: "fire-resistance rating" is used for assemblies such as walls, floors, beams, and columns, while "fire-protection rating" describes materials or products that protect holes through those assemblies.

It's also important to understand the difference between fire-resistance ratings and flame-spread ratings. The flame-spread rating measures the

another. NFPA 1144, *Protection of Life and Property from Wildfire*, includes fire-resistance requirements for exterior walls and flame-spread requirements for the materials applied to those walls and to roofs of structures that may be exposed to brush or woodland fires.

Because the requirements for fire-resistive construction vary with the intent of the code requirement, code users must understand the intent of a particular fire-resistive requirement before they can make sure that construction is properly designed and constructed. If the construction is used as a fire resistive barrier, then all details for penetrations of that barrier should be clearly shown on the design drawings. This allows the plans reviewer, the contractor, and the inspector the information they need to assure the fire resistive assembly will perform as intended. ♣

**CHIP CARSON** is president of Carson Associates, Inc., in Warrenton, Virginia.





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# INSIDETHEBELTWAY

**ON THE HEELS** of one of the worst forest fire seasons in U.S. history, Congress will try again this year to pass President Bush's Healthy Forests Initiative. Time ran out last fall after the president submitted his proposal in September.

Even with last year's time constraints, the House Resources Committee passed a Bush-friendly bill (H.R. 5319) in early October by a

majority of 23 to 14. The bill, however, was not passed by the House, and the Senate, which was progressing favorably when the 2002 session ended.

But the Bush administration got a jump on Congress when the DOI, the Department of Agriculture, and the White House Council on Environmental Quality (CEQ) announced on December 11 that they were beginning rulemakings on a number of Healthy Forests initiatives in case the congressional effort stalled. For example, the

Forest Service Chief Dale Bosworth says this situation is the result of a long-time practice of removing big trees and suppressing all fires.

"In the process, we've created conditions where trees have grown much faster than fires, harvest, and mortality have combined to remove them," he says.

The Forest Service and the BLM are the federal agencies responsible for hazardous-fuel removal on forested

## Congress will take up Bush's Healthy Forests proposal again

bipartisan majority of 23 to 14. That bill would have allowed the Forest Service and the Bureau of Land Management (BLM) of the Department of Interior (DOI) to reduce the time it takes to overcome legal challenges to forest-thinning projects. However, the bill never made it to the House floor.

In September, three competing amendments to the DOI appropriations bill were offered on the Senate floor, all incorporating some elements of the Bush proposal. But the Senate never voted on the amendments or the appropriations bill itself.

"Scott McInnis is going to come out of the gate immediately and try to move a bill quickly," says a staffer on the House Resources Committee, referring to Rep. McInnis, R-Colo., chairman of the Resources Committee's forests and forest health subcommittee in the last Congress. McInnis was the chief sponsor of H.R. 5319, which almost attracted the support of Rep. George Miller, D-Calif., considered the leading environmentalist in the House. Negotiations among McInnis, Miller, and Rep. Peter Fazio of Oregon, a top Democrat on the committee and a noted environmen-

talist, were progressing favorably when the 2002 session ended. But the Bush administration got a jump on Congress when the DOI, the Department of Agriculture, and the White House Council on Environmental Quality (CEQ) announced on December 11 that they were beginning rulemakings on a number of Healthy Forests initiatives in case the congressional effort stalled. For example, the Forest Service and the BLM want to begin fuel-reduction projects such as forest thinning without an environmental analysis when a project is judged to have no "significant impact" on the environment, based on its resemblance to past projects.

"This summer's fire season was a wake-up call," says James Connaughton, chairman of the CEQ, referring to the 7.1 million acres (28,733 square kilometers) that burned in the United States last year.

There's no question that Republicans and Western Democrats in Congress feel the political heat from the wildfires issue. Last year, the Hayman fire in Colorado, the Rodeo-Chediski fires in Arizona, the McNally fire in California, and the Biscuit fire in Oregon were the worst in each state's history. Twenty-one people, most of them firefighters, lost their lives.

Currently, 190 million acres (768,911 square kilometers) of public land are at increased risk of cata-

strophic wildfires. But lack of federal funds and legal challenges from environmental groups and others have prevented some thinning projects and limited the scope of others.

"There are just too many lawsuits, just endless litigation," Bush said in Oregon in August when he announced his Healthy Forests Initiative.

The extent of this legal problem is still unclear. The General Accounting Office (GAO) published a report in August 2001 looking at the 1,671 hazardous-fuel reduction projects the Forest Service had green-lighted in fiscal year 2001. Of those projects, 20, or about 1 percent, had been appealed, and none had been litigated. That



>>page 95



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# BUZZWORDS

**RECENTLY, SOME AUTHORITIES** having jurisdiction have interpreted NFPA 72®, *National Fire Alarm Code*®, to require a level of protection not required by applicable building codes or NFPA 101®, *Life Safety Code*®. Apparently, they've misunderstood

for a code-compliant installation.

As stated in its scope, "NFPA 72 covers the application, installation, location, performance, and maintenance of fire alarm systems and their components." For example, NFPA 72 establishes minimum requirements

with installation and performance requirements of NFPA 72, allowing the contractor to implement the particular attributes the codes, insurance requirements, or corporate procedures require. For non-required systems, the designer and the build-

## NFPA 72 doesn't add or delete requirements from building codes

Section 1.2.4, which indicates that NFPA 72 doesn't "require a level of fire protection that is greater than that which would otherwise be required by the applicable building or fire code." According to the Annex for Section 1.2.4, "some building and fire codes include requirements that imply NFPA 72 requirements that don't exist. The intent of this paragraph is to make it clear that the protection requirements are derived from the applicable building or fire code, not NFPA 72."

Evidently, some users of the 2002 edition also misinterpreted Section 1.2.4 to mean that no one may enforce a fire alarm system installation requirement that the occupancy-based codes don't address. If that were true, however, the occupancy-based codes wouldn't reference NFPA 72 in its entirety.

Building codes and the *Life Safety Code* set out the "where," "when," and "what" for those planning to install fire alarm systems in their buildings. Once the occupancy code has specified the where, when, and what, and has referenced NFPA 72, the fire alarm system must conform to all the applicable requirements of NFPA 72, and contractors must follow all its minimum installation requirements

for fire alarm system reliability and survivability, something the building codes and the *Life Safety Code* generally don't address.

Except for portions of Chapter 11, NFPA 72 expresses its requirements without reference to type of occupancy and doesn't establish the need for a fire alarm system or fire warning equipment for a particular occupancy. That's determined by the *Life Safety Code*; NFPA 5000™, *Building Construction and Safety Code*™; other building and local codes; insurance company requirements; corporate policies or procedures; or the simple desire of the building owner.

For required systems, these other codes, specify that the system comply

ing owner must establish the system attributes as a part of the system design. Most designers wisely rely on NFPA 72 requirements to guide their design choices.

Code writers are all trying to make buildings safer. Not surprisingly, the technical committee members who develop NFPA 72 have similar goals. They want to address fire alarm system installation requirements to ensure that the systems work when needed.

Bottom line: the goal of NFPA 72 is to establish installation requirements for all fire alarm systems. ♣

WAYNE D. MOORE is chair of the National Fire Alarm Code Technical Correlating Committee.





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# INSANDOUTS

AS THE AUTOMOTIVE industry works to develop alternative fuel sources, an NFPA technical committee works to ensure those new technologies are regulated.

For an organization that's been doing business for more than 100 years, NFPA does a good job of keeping up with the times, and the area of

become a popular choice, though, the technology will have to be regulated. Who should be involved in this regulation, and how should the work be divided?

## Experts meet

At the forefront of this discussion is the NFPA Technical Committee

## Searching for alternatives

alternative fueling systems for vehicles is no exception. In fact, we've long been involved in the regulation of natural-gas-powered vehicles and are now moving into the fuel-cell arena (see November 2002 *NFPA Journal* online exclusive "Fuel-Cell Vehicles—Coming Sooner Than You Think" at [www.nfpajournal.org](http://www.nfpajournal.org)).

Over the years, engineers in and out of the automobile industry have been developing new fuel sources for vehicles. Initially, natural gas seemed a plausible alternative because it emitted far fewer pollutants than traditional combustion engines. However, engineers soon realized that the limitations of natural gas would keep it from gaining mass appeal. Today, it's used mainly in commercial delivery vehicles, mass transit buses, and taxis.

The most recent development in the search for alternatives to traditional vehicle fueling methods is fuel-cell technology, specifically fuel cells powered by hydrogen. According to Ron Sims, chair of the Society of Automobile Engineers' (SAE) Fuel Cell Committee, hydrogen fuel cells have the potential to close the gap between the benefits of gasoline-powered combustion engines and natural-gas-powered combustion engines.

If hydrogen fuel cells are to

on Vehicular Alternative Fuel Systems, which is responsible for NFPA 52, *Compressed Natural Gas (CNG) Vehicular Fuel Systems*, and NFPA 57, *Liquefied Natural Gas (LNG) Vehicular Fuel Systems*. Last September, the committee met with SAE to discuss, among other things, how NFPA documents would deal with hydrogen fuel cells and when NFPA documents should defer to SAE documents. The SAE Fuel Cell Committee, composed of six working groups made up of industry experts, has already published several standards in this area and has drafts of several more.

The timing is right for NFPA's Technical Committee on Vehicular Alternative Fuel Systems to deal with these issues because it's currently consolidating its two documents. NFPA 52 will absorb NFPA 57 and will most likely be renamed Alternative Fuel Vehicles. The consolidated version will eliminate redundancies between the original documents.

The new document will also include requirements for hydrogen-fueling systems, specifically hydrogen fuel cells, although there is some question as to whether it should simply address the fueling systems or regulate the vehicles themselves. The committee's current documents address vehicles, mainly because no one else regulates them. Several of



SAE's documents address vehicles that use hydrogen-fueling systems, and NFPA's technical committee is currently leaning toward referring to them, rather than incorporating the requirements into our own standards.

Hydrogen is becoming such a big issue that we've begun to develop a coordinating committee to oversee hydrogen requirements in all NFPA documents. This group, which will mainly be concerned with how NFPA deals with hydrogen in alternative vehicles, will include the chairs of the technical committees that deal with electrical generating plants, the storage of industrial and medical gases, and hydrogen availability at automotive and marine service stations. These committees produce NFPA 853, *Installation of Stationary Fuel Cell Power Plants*; NFPA 50B, *Liquefied Hydrogen Systems at Consumer Sites*; and NFPA 30A, *Automotive and Marine Service Stations*, respectively.

Proposals for both NFPA 52 and NFPA 57, which will become the consolidated NFPA 52, are due to NFPA in August. For instructions on submitting proposals, visit [www.nfpa.org](http://www.nfpa.org).

JENNA PADULA is a frequent contributor to *NFPA Journal*



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# OUTREACH

**OF THE MANY** tragic scenarios I've considered as a fire safety educator, the image of people trying to escape a burning home, only to be blocked by immovable security bars on their doors and windows, haunts me the most. To see and hear people dying and be unable to help must be unimaginable, especially for first responders willing to risk their own lives to save someone else's.

Quick-release mechanisms allow occupants to open the bars by pulling a lever, pushing a button, or stepping on a floor pedal. California has passed laws requiring security bars on escape windows to be releasable and labeled with safety information. Mississippi and Texas have similar laws.

## Security bars can have unintended consequences

Recent news accounts serve as a stark reminder that metal security bars, designed to keep intruders out, can also keep occupants in during emergencies if they don't have a quick-release mechanism. Last year in Alabama, two adults and a five-year-old boy were fatally injured when burglar bars on the back door of their single-family home blocked their escape. In Georgia, bars on the window of a four-unit residence blocked escape and impeded rescue efforts in an incendiary fire that claimed the lives of two men and one woman. The victims were trapped in their rooms by the fire that was set in a first floor hall and bedroom.

"Clearly, any steps taken to keep intruders out of a home can have the unintended consequence of trapping people inside the structure in an emergency," says Sharon Gamache, executive director of the Center for High-Risk Outreach in NFPA's Public Education Division. The Center has been a leading advocate for change in this area in recent years, organizing a Home Security Fire Safety Task Force in 1993 to help reduce deaths and injuries from these fires through engineering, legislation, and public education solutions.

"Several communities stand out as true success stories in tackling this problem," Gamache reports. "In Fort Lauderdale, Florida, for example, members of the task force and the fire and rescue department did a sidewalk survey to identify homes with security bars. Each received a notice informing residents of the danger and listing installers who could retrofit the existing bars or put in newer, safer ones. Low-income residents were offered community block grant money to help with the cost."

With few communities implementing this kind of comprehensive program, the use of security bars without quick release mechanisms remains widespread, a potential cause of unspeakable suffering for the victims, their loved ones and their valiant rescuers.

### Overcoming denial

Central to motivating people to plan and practice escape routes in advance of a fire is overcoming their tendency to deny that they'll ever be involved in a fire and convincing them of the speed and power of unwanted fire. Anything that slows you down or blocks your exit can be fatal to you or someone you love.



If you have bars on your windows, make sure they're equipped with quick-release mechanisms that everyone in your household knows how to use. Even if you don't have security bars, take the time today to find two ways out of every room of your home and practice this drill with every member of your household. A secondary means of escape can include a window or door that can be opened from the inside without tools, keys, or special effort.

I'd like to believe that every NFPA member already has an escape plan that you've practiced with every member of your household, as well as the appropriate number of working smoke alarms in the appropriate places. To take your family to the next level of fire safety, however, I encourage you to think about installing a home fire sprinkler system. Sprinklers would have rewritten the ending for most, if not all, of those whose lives were cut short by security bars. 🚒

MERI-K APPY is NFPA's vice president of Public Education.



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# REMOTE

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# CONTROL

Chris Heftel, a Washington state land developer, has seen how destructive wild-fire can be. So he wanted to minimize the chances that such a disaster would destroy his latest project, an upscale, gated community of \$500,000 single-family homes on Lookout Mountain, about 7 miles (11 kilometers) from Spokane. >>

by BILL FLYNN ■ illustration by JEFFREY FISHER



At first, he was inclined to suggest that prospective buyers follow the concepts outlined in the Firewise Communities/USA program as part of their development contract. But when he was ready to start building last summer, Heftel decided to require prospective buyers to sign a covenant legally binding them to use fire-resistant building materials and follow wildfire prevention practices modeled after those in the Firewise program. When fully built, the development's nearly 100 homes will all be structurally fire-resistant and have a defensible zone around them.

It was a bold step, but, Heftel says, no one buying into the River Bluff Ranch development has refused to sign.

"We made it clear to everyone how important it is to use fire-resistant building materials and to be committed to fuels maintenance in an environment such as this," Heftel says.

Firewise Communities/USA is an education program sponsored by the National Wildland/Urban Interface Fire Protection Program, a consortium made up of the USDA Forest Service, the U.S. Department of Interior, the National Association of State Foresters, the U.S. Fire Administration, and NFPA. The consortium's covenants, which require fire-resistant building materials and defensible zones around properties, are a new concept in the wildland/urban interface. However, community adoption of wildfire standards such as NFPA 1144, *Protection of Life and Property from Wildfire*, is becoming common in many areas, as residents realize that the most effective way to avoid destruction from wildfires is proper construction and fuels maintenance.

"This particular mountain has never had a serious wildfire, but the forest is very vulnerable because unhealthy growth has been allowed," Heftel says. He says River Bluff Ranch is uphill and upwind from 1,000 acres (404 hectares) of public land that hasn't been maintained and is overloaded with fuels.

Among the requirements of the

River Bluff Ranch covenants are paved two-lane roads, secondary evacuation roads, and a network of forest roads. Also required are underground utilities; a series of non-potable-water storage tanks with dry hydrants; fire-resistant roofing, double-paned windows, deep side yard setbacks, defensible space, and vegetation maintenance; and an on-site caretaker, equipment, and shop.

The covenants further require that the community's homeowners' association, when formed, enforce the covenants, educate the residents, maintain the roads and water storage facilities, manage an ongoing forest stewardship program, and implement

used to convince homeowners to change their building material and construction habits. Frenchtown, Montana, with a population of 1,700, adopted NFPA 1144 in 1998.

"One of the things I like about the code is it's a standard we can refer to," says Frenchtown's Fire Chief Scott Waldron. "Except for the cities, there's no building code in Montana, so NFPA 1144 is a tool that we use with builders and homeowners to change their habits regarding the materials they use and the need to cut back on fuels."

NFPA 1144 provides those responsible for fire protection, land-use planning, property development, property maintenance, and others

**NFPA 1144 PROVIDES THOSE RESPONSIBLE FOR FIRE PROTECTION, LAND-USE PLANNING, PROPERTY DEVELOPMENT, PROPERTY MAINTENANCE, AND OTHERS RESPONSIBLE FOR, OR INTERESTED IN, IMPROVING FIRE AND LIFE SAFETY IN WILD FIRE-PRONE AREAS WITH MINIMUM REQUIREMENTS FOR PLANNING, CONSTRUCTION, MAINTENANCE, FIRE PREVENTION, AND MANAGEMENT.**

the recommended Firewise Communities budget—currently \$2 per person—to be used for future Firewise efforts.

"No one balked at committing to the Firewise covenants," Heftel says. "They view it as physical protection for themselves and their property, and an enhancement to the value of the house."

It's an attitude that Heftel views as a remarkable change.

"Only about five years ago, a similar, upscale development was constructed several miles from here that wouldn't allow anything but wood-shake shingles for the roofing," he says. "Shakes won't come anywhere near this development."

**Changing habits in Montana**

Washington isn't the only wildfire-prone state in which NFPA 1144 is

responsible for, or interested in, improving fire and life safety in wild-fire-prone areas with minimum requirements for planning, construction, maintenance, fire prevention, and management.

Waldron, whose department covers 150 square miles (388 square kilometers), says that, after adopting NFPA 1144, the community applied for grant money to do risk assessments throughout the town.

"We mapped high-risk areas using GPS (global positioning system) and targeted them for mitigation work," Waldron says. "Then we went to each of the homeowners and explained the risks, both in fuels buildup and construction on the property that was putting the structure at risk."

He says the grants also helped to



A family watches from their front yard as the Missionary Ridge wildfire rages out of control north of Durango, Colorado. Veteran Forest Service worker Terry Barton was charged with deliberately setting the wildfire southwest of Denver that destroyed at least 25 houses and forced 7,500 people from their homes.

secure extra help for a fuels-reduction program. "We've managed to do about 200 properties so far," he notes.

Before new homes can be constructed, the prospective owners must obtain a fire safety permit from the fire department. At this point, Waldron uses NFPA 1144 to inform the homeowners what they need to do to before construction.

"And we go back and check before the permit is issued," he says.

"I think one of the biggest mistakes we make in the business of fighting wildland fires is telling people that we will be there to protect them, because that's not always true," Waldron says. "But in the past few years, I think we've made a lot of progress in educating people on what they need to do, not only to have a defensible perimeter, but to use building materials that will allow a house to survive a crown fire."

According to the Structure Ignition Assessment Model (SIAM), a fire model developed by Jack Cohen, a scientist at the U.S. Forest Service's Fire

Sciences Laboratory in Missoula, Montana, a fire-resistive wooden structure surrounded by a 100-foot (30-meter) area in which fuels have been thinned has a good chance of surviving a fast-moving crown fire. However, Cohen's research seems to indicate that the principal cause of home losses during wildfires isn't necessarily the buildup of fuels. Rather, it's the degree to which a home is vulnerable to ignition, a factor that's often overlooked when determining the cause of property loss during a wildland fire.

"A home's ignition zone is pretty much determined by the characteristics of its construction and its immediate surroundings, regardless of what wildfire might be moving through," Cohen says.

Key elements in a structure's ignitability are flammable roofs; burnable vegetation, such as ornamental trees and shrubs, close to the house; the lack of tempered-glass or double-paned windows; and the lack of 1/8-inch

(0.3-centimeter) mesh to keep fronds from entering openings in the structure.

The research also seems to suggest that contemporary methods of fighting wildfires by reducing the fuel load may not be as effective as believed because thinning fuels on public lands does little to reduce the ignitability of a home on private land. It also suggests that the wildland/urban interface zone doesn't fully take into account the area of prime fire risk and fuel hazards: the house and surrounding vegetation.

Cohen further

stresses the importance of the conditions that exist when a wildfire is raging.

"When an extreme event, such as an intensely hot wildfire occurs, many hundreds of structures may be destroyed," he says. "The involvement of urban fire apparatus at this point is pretty much ineffective."

He points to the Los Alamos, New Mexico, fire in 2000 as an example.

"At one point the fire was threatening 1,000 structures. How does fire apparatus cope with that?" he asks. "Under these extreme conditions, we don't have a choice over the fire's behavior. Where we do have a choice is the home ignition, that 100-foot (30-meter) radius around the house."

#### Florida uses Montana research

Jim Harrell, the wildland mitigation coordinator for the Florida Division of Forestry, says his division uses Cohen's research to encourage homeowners to create zones around their property to reduce ignitability.

"We took a close look at what



Glendale firefighters wrap up hose lines after they ran out of water fighting a house fire Saugus, California.

Cohen found out in Montana to see how it applies to Florida,” Harrell says.

Over the last three years Florida, which adopted NFPA 299, *Protection of Life and Property from Wildfire*, (NFPA 1144’s former designation) as a reference item in the state’s Fire Prevention Code, has assembled fire management teams to help the state’s 15 fire districts reduce fuel loads, especially those near private property.

Harrell says that Florida has had great success with Firewise workshops.

“We’ve had 20 one-day workshops since August 2000, and we’ve had real good attendance from builders and developers who are beginning to buy into the Firewise concepts.”

Builders in other states are showing an interest, too. Among them is Leo Scott, who’s made a good living for 30 years as a building contractor in Prescott City, a fast-growing community in the high desert

of central Arizona. Since 1970, Prescott City’s population has almost tripled, from 13,000 residents to nearly 36,000. In 2002, it grew at the rate of 3.3 percent annually, and federal census projections predict a population of 45,000 by 2014.

Prescott City is located in Prescott National Forest 75 miles (121 kilometers) north of Phoenix, 90 miles (145 kilometers) south of Flagstaff, and about a mile (1.6 kilometer) above sea level. Its rugged beauty and hundreds of square miles of forest land is a magnet for thousands of new residents every year, most with little or no experience living in the wildland/urban interface.

“Construction, especially new home construction, is our biggest business,” Scott says. “And people who buy property with plans to build a house have a certain expectation that construction costs will remain affordable. That’s why there was concern among

builders when workshops focused on building materials.”

Those workshops were Firewise workshops, and concerned or not, the community opted to pursue the program, with as many people as possible involved in implementing Firewise techniques. Prescott City’s been an active Firewise community since 1990, and Scott and his fellow contractors, as well as newer and long-time residents and fire officials from various jurisdictions, participate in the effort to maximize the city’s fire resistiveness.

Throughout the 1990s, says Prescott City Fire Chief Darrell Willis, the Firewise Communities effort made slow, steady progress, but it was the Cerro Grande fire near Los Alamos that galvanized the community.

“That wildfire really got people’s attention, and we got much more serious about our Firewise program and

began stressing the need to use building materials that give structures a chance to survive a wildfire.”

Scott says the use of fire-resistive materials was a “touchy subject” because the fire department is in a different business than builders.

“We’re trying to produce a product that’s marketable and affordable, and you have to be careful that you don’t price yourself out of the market,” he says. However, he acknowledges that many of the things the Firewise pro-

gram advocates are just common sense and don’t cost much.

gram advocates are just common sense and don’t cost much.

“Something as simple as making sure all soffits are fully enclosed (to keep out fire brands) is easily done,” he notes. “We were able to get closer to a balance between the need to use fire-resistive materials and a desire of homeowners to build attractive, affordable houses.”

Scott says he now regularly uses fire-retardant, Class A-rated shingles made of asphalt or masonry on roofs, although he doesn’t often use treated wood because it needs periodic maintenance.

“Who’s going to make sure that the wood gets re-treated to keep it fire-retardant?” he asks.

Because the Arizona climate is so dry, Scott says the use of wood on exterior walls is uncommon.

“It dries out quickly, rots, and then needs to be replaced.”

Instead, he usually applies one coat of stucco with a one-hour fire rating to exterior walls.

Arizona’s climate also requires that homes have excellent ventilation.

“You can’t eliminate ventilation in

houses because you’ll end up with mold and mildew and void the warranty on the new house,” Scott says. His solution was to use 1/8-inch mesh to cover such openings as crawl space and attic accesses. It works.

“Flames in wildfires move so fast that there’s not enough time for them to penetrate the much closer mesh,” Scott says.

“The mesh really works to keep out fire brands and sparks and still allows the house to be well-ventilated,” Willis

says. Because fire officials worked closely with the building community in developing a consensus approach to choosing building materials, Scott says he’s become an enthusiastic supporter of the Firewise program.

“The whole process has been very positive for our community,” he says.

Even before a building permit is issued, however, the fire department inspects the land and identifies the vegetation that must be removed before construction can begin.

“We go out and tell them what needs to be done, how far back they must cut back the trees and brush and other fuels,” Willis says. “And we go back to inspect and make sure it gets done before we issue a building permit.”

Willis says that, over the past two years, Prescott City has received grant money from the federal government to help pay for a portion of the cost of crews to remove vegetation and create defensible space on property occupied by older homes.

“We’ve managed to treat more than 1,000 properties in two years,” Willis says. “We’re making a pretty good dent.”

### False sense of security

“No place in the United States is completely safe,” says the NFPA’s James Smalley, project manager for Firewise. “There are floods, hurricanes, blizzards, tornadoes, and wildfires. Every spot in the United States has the potential to be affected by a force of nature, but wildfires don’t elicit the same attitudes of self-preservation that those other forces do.”

Smalley, a nationally recognized expert on effective methods of minimizing the loss of life and damage caused by wildfires, believes many Americans, especially those new to the wildland/urban interface, have a false sense of security borne of their previous life in an urban or suburban environment.

“So much of our population has lived within 50 miles (80 kilometers) of a large or medium-sized city that we’ve become accustomed to expecting the local fire department to do it all,” Smalley says. “But it doesn’t happen like that in areas near wildlands.”

Smalley says the issue is no longer how to protect people and property. Effective methods have already been identified. The primary issue now is educating people who live in the wildland/urban interface about these rules and procedures, and emphasizing how important it is that they be closely followed. In addition, Smalley says, it requires a change in attitude among these residents of remote regions.

“When living in the urban, built environment, people can get away with the attitude of ‘I’m not responsible for my own protection.’ But in the wildland, you’re on your own,” he says. “City dwellers are taking city-living concepts to places where they don’t exist. We need to learn a lot more about living in the natural environment.”

That’s why the Firewise program and NFPA 1144 are playing such important roles in teaching people how to pick the right location for a house in wildland, how to landscape properly, and how to use fire-resistive building materials. ♣

## THE RESEARCH ALSO SEEMS TO SUGGEST THAT CONTEMPORARY METHODS OF FIGHTING WILDFIRES BY REDUCING THE FUEL LOAD MAY NOT BE AS EFFECTIVE AS BELIEVED BECAUSE THINNING FUELS ON PUBLIC LANDS DOES LITTLE TO REDUCE THE IGNITABILITY OF A HOME ON PRIVATE LAND.

LAST YEAR'S  
WILDFIRE  
SEASON,  
THE  
SECOND  
WORST  
IN THE  
PAST 50  
YEARS,  
PROVES THE  
IMPORTANCE  
OF WILDFIRE  
EDUCATION  
PROGRAMS.

by SHELLEY REESE

illustration by  
JOHN LEZINSKY

# ON THE **EDGE**

IN 2002, MANY AMERICAN homeowners added a new term to their lexicon: wildland/urban interface. Always a concern to firefighters and foresters, the danger of wildfire in areas that forests and homes share gained prominence last summer as Americans turned on the nightly news to see infernos raging near communities throughout the West. >>







A water dropping helicopter makes a rare night drop in the hills above La Verne, California. Seventy homes in an upscale suburb abutting the San Gabriel Mountains stand abandoned as an 8,000-acre wildfire raged out of control in the rugged terrain of the Angeles National Forest. Opposite page: Firefighters work the forward line of the Hayman wildfire near Deckers, Colorado.

In terms of acreage burned, the 2002 season was the United States' second worst in the past 50 years. By the time it was over, more than 7.1 million acres (2.9 million hectares) were charred, nearly double the 10-year average. Even more alarming, much of the burned land was dangerously close to communities.

While firefighters successfully protected 98 percent of the more than 110,000 structures threatened during the season,

## While firefighters successfully protected 98 percent of the more than 110,000 structures threatened during the season, tens of thousands of people had to be evacuated from 200 communities.

tens of thousands of people had to be evacuated from 200 communities. About 3,000 families in a number of Western states lost their homes or other structures on their property, and 21 firefighters died.

There's no lack of examples of the destruction. In March, a wind-driven fire destroyed homes near Ruidoso, New Mexico. In late June, the Rodeo and Chediski fires burned together in Arizona, scorching nearly 470,000 acres (190,202 hectares), threatening several communities, and forcing thousands of residents to flee their homes before consuming 426 structures. In Colorado, the largest fire in the state's history, the Hayman fire,

destroyed hundreds of structures and forced the evacuation of residents in 51 mountain communities surrounding Denver. The 138,000-acre (55,847-hectare) fire, which grew from 100 to 20,000 acres (40 to 8,094 hectares) in a single day, destroyed 133 homes and 466 outbuildings. Between mid-July and early September, the Biscuit Complex burned half a million acres (202,343 hectares) in Oregon and threatened the entire Illinois

Valley. Although only 13 structures were lost, the fire forced thousands of residents out of their homes. And in Southern California, the Williams fire, a 38,000-acre (15,378-hectare) blaze, forced 5,000 residents to evacuate between September 24 and 28. The fire threatened 10,000 structures, though it only destroyed 100.

Given the severity of the season and the losses endured, it's difficult to find a silver lining to this cloud. If one exists, however, it's the growing awareness among residents in urban interface communities that they must do their part to safeguard their property from wildfires.

"That call to evacuate puts the fear of

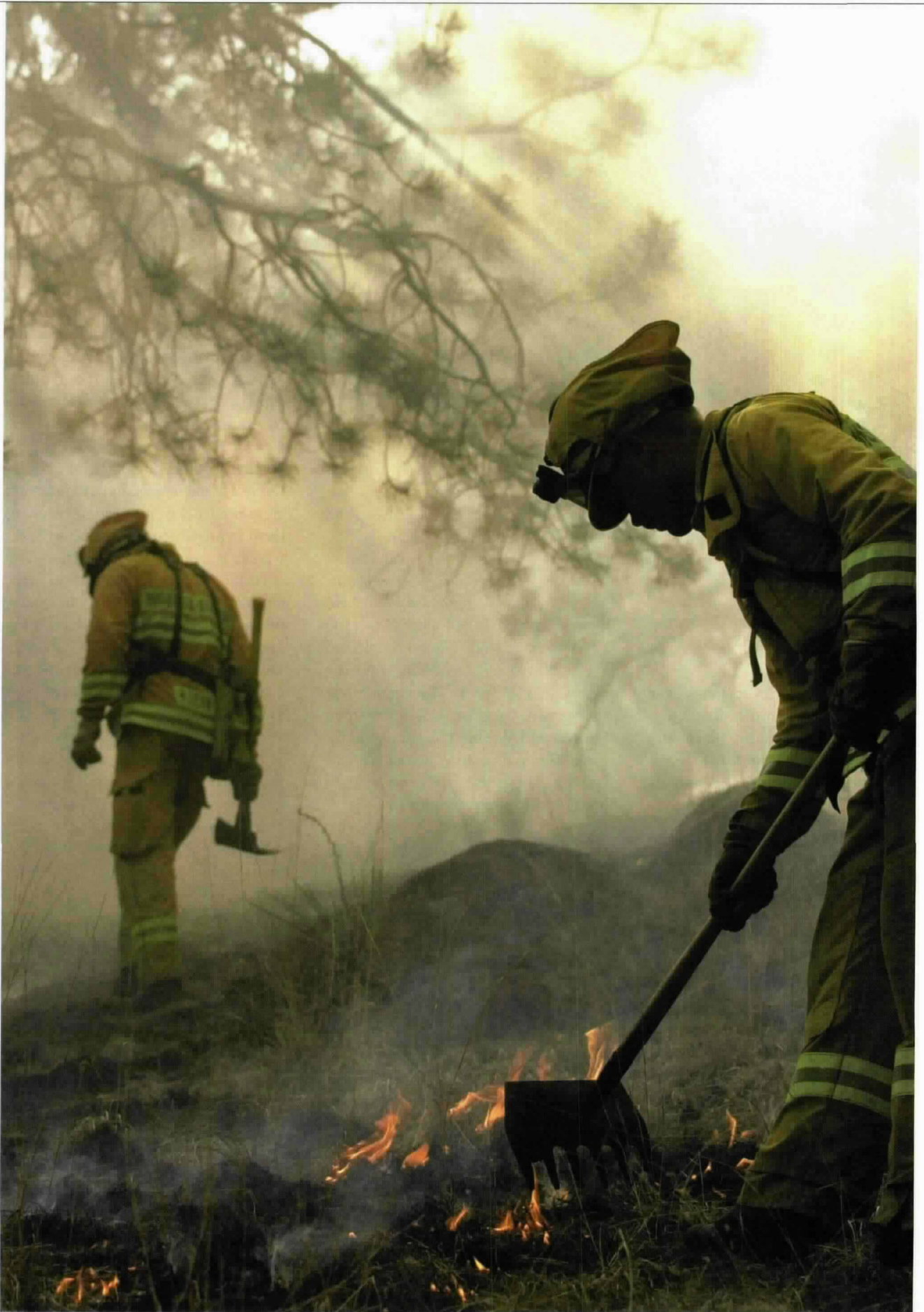
God in you," says Sam Corsino, chairman of the Firewise committee for the Timber Ridge Homeowners Association outside Prescott, Arizona, who saw a wildfire claw its way to within a quarter mile (0.40 kilometers) of his home. As he and his wife drove away from their house, Corsino remembers watching fireballs leap into the sky just 500 yards (457 meters) away.

"You just get a sick feeling. No matter what you've done to protect your property, you think, 'it's not enough,'" says Corsino.

### Hot, dry, and dangerous

The 2002 wildfire season began on January 1, with more than 100 small fires reported in the southeastern United States. For the most part, however, fire activity remained light until early May when large fires began to ignite in the Southwest, the Rocky Mountains, and Southern California. By June 21—five weeks earlier than ever before—firefighters had been put on the highest level of preparedness, Level 5. They operated at that level for 62 days, 16 days longer than the previous record set in 1994.

While the actual number of fires was considerably smaller than the average for the decade of the 1990s—68,000-plus versus 106,400—nearly twice as much acreage burned. Colorado, Arizona, and Oregon all recorded their largest fires in a century, as timber fires



PHOTOGRAPH: AP/WIDE WORLD



**A wildfire burns on the Santa Cruz Mountains near Morgan Hill, California.**

of more than 100,000 acres (40,469 hectares) charred all three states. Alaska was hit hard, as well.

Much of last year's devastation was the result of a prolonged drought that has plagued much of the country for months and turned years of accumulated fuels into a tinderbox. About 45 percent of the nation reported moderate to extreme drought conditions early in the season, and droughts now persist in nearly half the country, according to the National Interagency Coordination Center.

Southern California, the southern Great Basin, the Southwest, the Rocky Mountains, and the Eastern Seaboard all went into the season unusually dry. In Colorado, State Forester Jim Hubbard says tree-ring analysis indicates the on-going drought that exacerbated last year's incendiary season is the worst in 277 years.

"We have too many acres of forest, particularly in the interior West, that are subject to large, hot, angry fires," Hubbard says. Fuels are so dry and heavy that the Colorado fires burned at an unprecedented rate, he says, noting that the Hayman fire spread 19 miles (31 kilometers) in a single day.

In all, Colorado saw some 500,000 acres (202,343 hectares) go up in flames. That compares with a 10-year annual average of about 70,000 acres (28,328 hectares).

"Normally, we'll have 10 large fires in a year. This year, we had 65, and we evacuated 142 subdivisions and more than 81,000 people. Fires burned 384 homes and more than 1,000 structures, so it was definitely an interface situation with nearly all of our fires," says Hubbard.

A heat wave caused similar problems in the Northwest. During the second week of July, temperatures in Burns, Oregon, climbed into the triple digits for days, before

hitting a record 107° F (42° C) on July 12. Across the state, Medford reported five consecutive days of temperatures over 100° F (38° C). The intense heat gave way to lightning strikes throughout Oregon and Washington that ignited some 375 fires, 16 of which developed into fires larger than 100 acres (40 hectares) or into a complex of fires. Three of these large fires—the Biscuit and Deer Point fires and the Tiller Complex—remained active into early September. The Biscuit fire ultimately merged with the Florence fire to become the largest fire in the country, burning some 500,000 acres (202,343 hectares).

The drought and intense heat combined to make July 31 the busiest day of the season. On that day alone, 148 new fires ignited, adding to the 31 large fires already burning across the nation. Roughly 28,000 people and a U.S. Army battalion fought the blazes that day, using 1,205 engines, 30 air tankers, and 188 helicopters. A few weeks later, 50 fire-line and aviation managers from Australia and New Zealand and more than 900 firefighters and managers from Canada joined the effort.

An early north wind pushed the Ore-

gon fires across the border into Northern California in late July, and on July 12, the same lightning storms that ignited blazes in Oregon sparked six large fires in Modoc County, California, over a three-day period.

Still, California and a number of other states escaped the brunt of the season. Although California, Idaho, Montana, and Nevada all experienced extremely dry conditions, the lightning that torched the Northwest didn't affect them, according to Rick Ochoa, national fire weather program manager for the Bureau of Land Management. As a result, they didn't experience the multiple starts the Pacific Northwest endured.

### **Lessons from the interface**

If those living in wildland/urban interface areas needed a gentle prod to encourage them to prepare for wildfires, the 2002 wildfire season was a bone-jarring push.

Fortunately, some communities were already aware of the dangers of wildfire before the season began. The Perry Park Metro District near Larkspur, Colorado, for example, had launched a wildfire education program in 2001 as part of Firewise, a program sponsored by NFPA and a consortium of wildland fire agencies to educate interface communities about the danger of wildfires and help them mitigate the risk. As a result, 90 percent of Perry Park residents surveyed said they understood the danger of wildfires, and many had begun thinning trees and clearing brush on their properties.

But the Hayman fire, which forced the community to evacuate before firefighters contained it a few miles from Perry Park, provided added impetus to take action. As proof, resident Keith Worley, who heads Perry Park's fuels mitigation program, points to the community's slash pickup program. In 2001, contractors picked up and disposed of some 2,500 cubic yards (1,911 cubic meters) of brush cut from around homes in Perry Park. This year, that figure is likely to top 7,000 cubic yards (5,352 cubic meters). What's more, classes, such as the one Worley recently taught on preparing a residence to withstand a fire without intervention, are well attended. Perry Park's program

has received such widespread participation that the community earned the Firewise Communities/USA designation in October, the newest element of the 10-year-old Firewise program. This designation will allow wildland fire staff from federal, state, and local agencies to work with Perry Park and any other community so designated.

Residents of Arizona's Timber Ridge community, which has had a Firewise committee since July 2001, had a similar experience. That summer, the committee invited residents to have the Prescott Fire Department inspect their lots. By the following spring, more than 150 homeowners had signed up for a home inspection, which resulted in the thinning of shrubs and trees on many properties.

Then Timber Ridge had its own scare. Last May, the 6,000-acre (2,428-hectare) Indian fire burned right up to the city's perimeter. Although Timber Ridge lost no homes, officials evacuated residents for nearly two days.

"We got a lot of converts after the fire," says Corsino. People who once protested that they had moved to the interface to be closer to the woods were suddenly requesting home inspections and clearing their lots. Just days after residents returned to their homes, they filled two dumpsters provided by the city of Prescott for slash disposal and two more had to be brought in. In all, homeowners eliminated 160 cubic yards (122 cubic meters) of slash in a matter of days. By the middle of June, 250 lots were scheduled for inspection and clean-up.

While residents of communities that had a brush with disaster may have experienced a greater sense of urgency as a result, they're not alone. Last season's fires raised awareness in communities throughout the United States.

"We definitely saw an increase in interest in Firewise," said Jim Smalley, NFPA's manager of wildland fire protection. Twice as many people visited the Firewise Web site ([www.firewise.org](http://www.firewise.org)) this year, and during the busiest month, the Web site received some 500,000 hits.

### The year ahead

Encouraging though homeowner action



**Two Los Angeles County firefighters watch a wildfire burn as they stand on Highway 14 near Santa Clarita, California. Shortly after it started, the fire split and jumped the freeway and both sides of the highway were closed.**

may be, it won't be enough to prevent major losses in the interface unless additional federal action is taken, Hubbard says.

"We had a very receptive audience this year because of the fires, so Firewise got added emphasis. But the Hayman fire made a 19-mile (31-kilometer) run in a single day, so it's not just subdivisions that need to take action. We have to take action on a larger scale because we're talking about the whole landscape," he says.

Residents of Perry Park, whose western boundary abuts forestland, say the same thing. Fuels treatment in the area is currently subjected to a lengthy review process under the National Environmental Policy Act because the area is considered a potential habitat for the Mexican Spotted Owl. Perry Park's Worley hopes the controversial Healthy Forest Initiative proposed by President Bush will accelerate that review process. Fuels treatment in the area would bring Perry Park a step closer to its goal of becoming a truly defensible community.

Unfortunately for firefighters and those living in fire-prone areas, wildfire policy may be the only factor likely to change this year. Prevailing weather conditions

hold little hope that the 2003 season will be any milder than the one just past, according to Ochoa.

North Carolina, Virginia, Colorado, Utah, Arizona, and Nevada continue to suffer from the worst droughts on record. The Northwest isn't likely to find respite, either. A weak El Niño pattern detected in the Pacific Ocean last spring has persisted and become a moderate-to-strong pattern that's expected to continue at least through this coming spring. El Niños, which are the result of abnormal warming in the central tropical Pacific, usually produce increased precipitation in the South and drier conditions in the Northwest. Although that could provide some relief for the Southwest and Gulf Coast, both areas are unusually dry from years of drought and will need a long and sustained soaking to recover, says Ochoa. For the Northern Rockies and the Northwest, the pattern signals the potential for another incendiary season.

"Last year was an unusual year and not one we want to repeat, but we don't see any major indications of changes in weather, and we know the forest condition isn't going to change substantially between now and then," Hubbard says. ♣



PROTECT  
OUR  
FORESTS

HEALTHY  
FOREST  
INITIATIVE

# WHAT

is the

ADVOCATES SEE PRESIDENT BUSH'S HEALTHY FOREST INITIATIVE AS A

# BEST

WAY OF STREAMLINING THE ENVIRONMENTAL REVIEW PROCESS. BUT

# POLICY

ENVIRONMENTAL GROUPS SAY IT'S AN EXCUSE TO BYPASS THE PROCESS.

HALF FULL OR HALF EMPTY? Tastes great or less filling? Paper or plastic? As with most debates, one's assessment of the current state of U.S. wildfire policy depends a lot on how one approaches the topic.

Last August, President George W. Bush introduced his Healthy Forest Initiative, which the White House describes as "an initiative for wildfire prevention and stronger communities." The program calls for improving procedures for fuel treatment and forest restoration; reducing overlapping environmental reviews; developing a matrix for assessing the risks and benefits associated with fuel treatment and restoration; and developing an environmental assessment model to ensure treatment and restoration are consistent with the National Environmental Policy Act (NEPA). >>

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by SHELLEY REESE ■ illustration by SETH

According to the 1997 report, *The National Environmental Policy Act: A Study of Its Effectiveness After Twenty-five Years*, NEPA gives a voice to the national consensus to protect and improve the environment, and substance to the determination articulated by many to work together to achieve that goal.

Because it would enable foresters to bypass some environmental review processes established by that act, several elements of the initiative require congressional approval (see "Inside the Beltway" on page 38). Among other points, the president is lobbying Congress to approve legislation that would authorize agencies to enter into long-term "stewardship" contracts with private-sector organizations and communities that would allow contractors to keep wood products in exchange for thinning programs.

Fire safety advocates and environmentalists still disagree about whether it's the right solution.

Fire safety advocates like Texas State Forester Jim Hull tend to support the Healthy Forest Initiative, which Hull sees as enabling forest managers to "cut through the bureaucracy and the red tape."

The National Association of State Foresters (NASF) supports the Healthy Forest Initiative, which Jim Smalley, NFPA's manager of Wildland Fire Protection, says is unlikely to affect NFPA wildland standards, as a way to jump-start the National Wildfire Plan.

Created in 2000 in the wake of a particularly brutal fire season, the plan is a cooperative long-term effort by the USDA Forest Service, the Department of the Interior, and NASF. It focuses on preventing and suppressing fires, reducing fuels, restoring fire-adapted ecosystems, and promoting community assistance.

In August, during the heat of the second-worst wildland fire season in 50 years, NASF President Larry Kotchman praised President Bush for recognizing the need for immediate action and for keeping his proposal consistent with the goals and objectives of the National Fire Plan.

"There's an urgent need for broad-based fuels-reduction efforts to prevent another fire season as severe as the one we're experiencing now," he said.

### Raising environmentalists' ire

They assert the initiative will increase logging in national forests and cut the legs out from under the National Environmental Policy Act. In a full-page advertisement in *The New York Times* last fall, some three dozen environmental groups implored readers to write to President Bush protesting the initiative.

Andy Stahl, executive director of the not-for-profit Forest Service Employees for Environmental Ethics (FSEEE), says his organization feels the proposals will "limit the scope of existing environmental laws, are ill-considered, and will do little to address underlying problems."

"We do think there are vast areas of our forest, particularly in the inland ponderosa pine forests, where logging, drought, overgrowth, and grazing have dramatically affected the ecology," says Stahl. "A range of management options is necessary to address the situation, but none of those need to undermine or undercut existing standards. There is no one solution, and for the administration to propose a piece of one-size-fits-all legislation is disingenuous at best."

The board of the FSEEE, which is based in Eugene, Oregon, consists of former and current Forest Service employees.

Fire historian Stephen Pyne, author of "The Year of the Fires," supports the Healthy Forest Initiative because it would allow thinning in certain areas and allow more flexibility in forest management, but he laments that fire has become an ancillary issue in the political debate.

"Fire is still being hijacked for political purposes," he says. "I guess that's because there's really not a constituency for fire. We've had big fire seasons during election years, and that's produced an accelerated interest in fire by government. People know that the business-as-usual approach won't work anymore. They're saying 'we want to do something about fire,' but they want to attack other agendas, as well."

A case in point, he says, is the White House billing the Healthy Forest Initiative as "fulfilling the promise of the 1994 Northwest Forest Plan." When it was developed, the plan was intended to end court injunctions that had brought timber production in the Pacific Northwest to a

### NEPA has five basic mandates:

- **SUPPLEMENTAL MANDATE**

to add to the existing authority of every federal agency the responsibility and power to protect the environment and integrate environmental, social, and economic objectives when carrying out other agency functions.

- **AFFIRMATIVE MANDATE**

not only to preserve existing environmental quality, but to make decisions that restore and enhance the environment.

- **PROCEDURAL MANDATE**

to use a planning and decision-making process for developing or considering the approval of plans, policies, programs, or projects that gives "appropriate consideration to environmental values and amenities," which occurs mainly through the analysis of environmental impacts and alternatives, including mitigation measures.

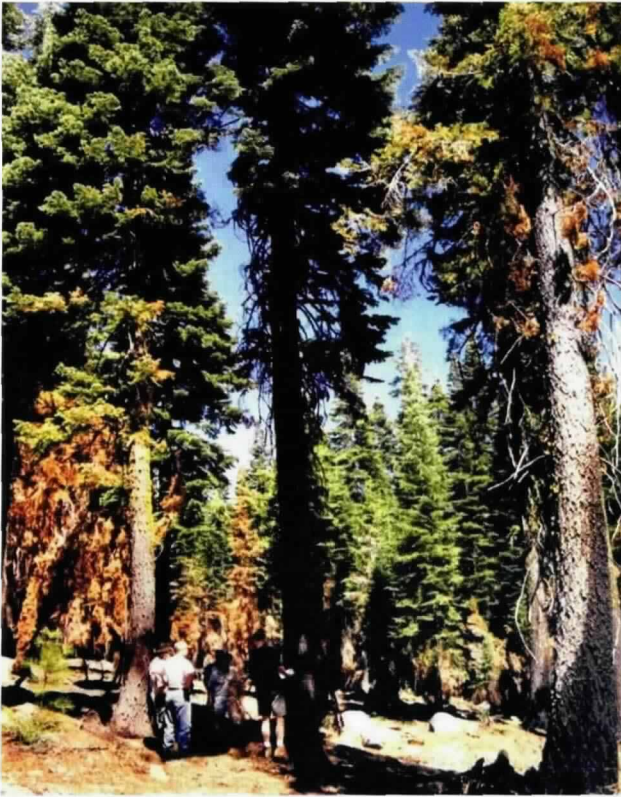
- **SUBSTANTIVE MANDATE**

to recognize that everyone should have a *healthful environment* and has a responsibility to contribute to environmental quality, and to require that all federal agencies "to the fullest extent possible" interpret and administer all laws in ways that implement the policy of serving as trustee of the environment for present and future generations and the other policies set forth in NEPA. In other words, the responsibility to "act" to protect the environment.

- **INTEGRATION MANDATE**

to implement the substantive national environmental policy "to the fullest extent practicable" in a manner "consistent with other essential policy considerations." In other words, to take the environmentally preferred course of action unless it poses a conflict with other essential policies, in which case the decision-maker looks to the substantive policies of NEPA as a guide for integrating varied considerations and making decisions directed toward achieving a productive harmony between people and nature.





Officials from the U.S. Forest Service, The John Muir Project, and the Sierra Club examine trees marked by the forest service for removal in the Lassen National Forest, northeast of Chico, California. The Forest Service has suspended plans for salvage logging in the Sierras after an appeal by environmentalists who say the agency is exploiting loopholes to clearcut healthy old-growth forests following wildfires.

virtual standstill by affording certain protections for old-growth species while providing local economies with a predictable timber supply. The Bush Administration asserts that the plan hasn't lived up to the latter of those two aims because litigation and procedural delays have prevented balanced implementation of the plan.

"Of the 24.5 million acres (9.9 million hectares) covered by the plan, approximately 80 percent of the areas designated forest preserves are managed for habitat value rather than timber production," according to a White House statement. "Thinning and timber salvage activities are supposed to be allowed in some of these areas if a federal inter-agency group decides it's appropriate to meet the desired conditions for the land. But this process hasn't worked as it was intended."

Pyne contends that if the Bush

Administration were truly putting the issue of wildfire at the heart of the Healthy Forest Initiative, it wouldn't link wildfire policy to a program as contentious as the Northwest Forest Plan.

"It's like putting an abortion rider on a bill," he says. "It shows you're not serious about passing the bill. By reopening the Northwest Forest Plan, you're opening a whole raft of logging, wildlife, and ecological issues that are pretty tangential to the problem of fire."

President Bush has proposed \$698.7 million for wildfire prevention and suppression and Healthy Forests initiatives in fiscal year 2004, a \$45 million increase, which is a 7 percent increase over last year's budget proposal. The President's budget was released February 3.

The FY 2004 request includes continued funding for a robust hazardous fuels treatment program at \$186.2 million, which is a 400 percent above spending in FY 2000, that will lessen the risk of catastrophic wildfire on 307,000 high priority acres in the wildland-urban interface, and on 768,000 other nonpriority acres.

The budget request calls for \$282.7 million for fire preparedness, including an additional \$5 million for aviation contract costs; \$195.3 million for fire suppression; \$24.5 million for rehabilitating burned areas; and \$10 million for Rural Fire Assistance.

### Finding common ground

While the issue of wildfires and forest management may be charged, navigating the flotilla of concerns voiced by diverse interest groups isn't impossible, Colorado State Forester Jim Hubbard insists.

"The environmentalists are concerned about changing environmental law and modifying policy," he says. "They don't want public participation in the process to be eliminated, and they don't want treatments not to be subject to review. The administration wants to accelerate review where life and property are at risk. Both positions are reasonable.

"What we have to do is make sure the public isn't cut out of the treatment review process. On the other hand, we're going to have to make some of those decisions much faster in the interface," Hubbard says.

Groups such as the Nature Conservancy, which has neither endorsed nor condemned the initiative, voice a similar view.

"We at the Conservancy think any approach to restoring forest health needs to be based on three things," says Jeff Hardesty, a conservation ecologist specializing in fire and ecosystem health. "Good science, protection of communities and property, and long-term forest ecosystem health. When those three factors are the driving force, we certainly support taking a very active, efficient, and focused approach to restoring our nation's forests."

Although they're at loggerheads on a number of different points, environmentalists and government forestry management agencies are increasingly finding common ground regarding fire in the interface.

"The good news is there's a recognized risk out there in the interface, and people are looking for solutions," Hubbard says. "We'll continue to argue and debate and to have some politics in trying to develop what those solutions are, but I think we've come to the point where everyone recognizes that we have to find a solution, and I think that's encouraging."

In the interface, no one is debating whether a fire should be left to burn, he says. Rather, the discussion centers on where and how to treat fuels.

"Where there's lower-elevation ponderosa pine near communities, I think everyone is at the same table. It's where you have higher-elevation spruce forests, you're going to have a difference of opinion," he says. ♣

by RICK COOK

# show low arizona inferno

## EVACUATION LESSONS LEARNED IN THE RODEO-CHEDESKI FIRE

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**When fire broke out** on June 18, 2002, near the Cibique rodeo grounds on the Fort Apache Indian Reservation in east central Arizona, no one knew what was coming, but fire officials were afraid of what might happen.

“We had a couple of small fires prior to this that gave us a heads-up and scared us to death,” says Ben Owens, chief of the Show Low Fire District, about 20 miles (32 kilometers) north and west of the fire’s point of origin. “The fire behavior was so erratic and extreme. We felt we were going to have an event this year, and unfortunately, we were right.”

Four years of drought had left Arizona’s forests so dry and fuel loads so heavy—up to 25 tons per acre (22.7 metric tons per 0.4 hectares)—that officials from the U.S. Forest Service, state agencies, and local fire departments and districts had worried about a monster fire for months. They had reacted vigorously to threats all summer, trying to keep the wild fires contained and hoping for the best. >>





On June 18, however, their luck ran out. At the Cibique rodeo grounds, the drought and fuel loads combined with high winds and terrain to produce something that was simply unstoppable.

When the fire near the rodeo grounds was reported at 4:11 p.m., firefighters were just wrapping up operations at a smaller forest fire nearby, and they responded aggressively to the new threat. An air tanker and a helicopter, both already in the air, were immediately dispatched, along with an engine, and dropped the first load of water on the fire at 4:23 p.m. By that time, the "Rodeo" fire was already estimated at 15 acres (6 hectares). By evening, it had grown to between 100 and 300 acres (40.5 to 121 hectares). By 5 p.m. the next day, it had burned more than 16,000 acres (6,475 hectares)—and it was just getting started.

Two days later, on the morning of June 20, a stranded motorist trying to flag down a news helicopter started a signal fire at Chedeski, about 15 miles (24 kilometers) northwest of the Rodeo fire's point of origin. The helicopter pilot called in the fire before the motorist even scrambled down the slope where she had set the fire, and firefighters responded promptly. Despite their efforts, the fire took off and jumped the ridge, covering 2,000 acres (809 hectares) in a matter of hours.

On June 22, the Rodeo and Chedeski fires joined to become what would become the worst forest fire in recent Southwest history. Before it was contained on July 2, the Rodeo-Chedeski fire would burn 468,000 acres (189,395 hectares) of brush and Ponderosa pine, destroy nearly 500 structures, and force 32,000 people from their homes in about a dozen communities. Some of them wouldn't return home for nearly two weeks.

### **Summer and retirement homes**

The area in which the Rodeo-Chedeski burned is a study in wildland/urban interface. Most of Arizona is either government land, such as the Apache-Sit-graves National Forest; Indian reservations, such as the Fort Apache reservation; state land; or otherwise unavailable for development. Private land in forested areas is eagerly sought for

summer and retirement homes, and the area is full of small communities and subdivisions. Much of the settlement is scattered, and the overall population density is low, although many individual developments are quite closely packed.

As much as they could, developers and homeowners have preserved the trees that, along with the cool temperatures, attract people to the area. Even the mobile home parks preserve as many trees as possible.

"We have people saying, 'We bought the trees up here, and that's why we moved,'" says Owens.

That attitude may be natural for people who normally live in a desert city such as Phoenix, but it makes it difficult to reduce fire danger by effectively thinning the trees around homes.

The front of the Rodeo-Chedeski fire roughly followed state Route 260 as it swept through the wooded Mogollon Rim country from the subdivision of Forest Lakes on the western side of the fire to the town of Show Low on the east. In some places, the fire was halted at or before the highway. In others, notably near the communities of Heber and Overgaard in the east-central part of the area, the fire jumped the highway and burned well north of the line. In general, the areas to the northeast and east were most immediately threatened, while the danger to communities such as Forest Lakes on the western side of the fire came days later.

The timing helps explain the relative destruction the fire caused. Heber, Overgaard, and nearby communities were threatened early, evacuated on June 20, and were relatively hard hit. Overgaard and the nearby community of Aripine lost 251 homes and 16 businesses. Forest Lakes was also evacuated, but the fire was stopped short of the community, thanks in part to the extra time residents had to prepare.

"If that fire had hit us like it did in Heber-Overgaard, where they had a day's notice, well, they had no chance," says Keith Scholl, chief administrator for the Forest Lakes Fire District.

The fire was also a study in community evacuation in the face of a major

wildland fire, providing lessons that will affect the way we deal with future fires. Some lessons, like the need for preparation, are perhaps obvious. However, others, such as the problem of pets and livestock left behind, are less so.

Perhaps the biggest lesson gleaned from the Rodeo-Chedeski evacuations, all the participants agree, was the importance of preparation at all levels. In a wildland/urban interface fire involving evacuations, that means preparing both firefighters and the public, and planning for the event with the other agencies that will be involved.

It's important for fire agencies to be honest with themselves about their capabilities.

"Something like this is a major self-assessment of who you are and what you can and can't do," says Owens. "As a fire department, are you prepared for something like this? Do you have the manpower, the training, and the certification in place to integrate with the Forest Service systems? As a community, have we been good stewards of the community?" Stewardship includes making sure that fire apparatus can get into subdivisions and to individual homes in threatened areas, Owens says.

An evacuation is a coordinated effort, and fire departments aren't usually the lead agencies in getting people out of an area. During the Rodeo-Chedeski fire, that role fell to the local sheriff's departments, which decided when and how much territory to evacuate. That meant that fire departments had to plan the evacuation with the sheriff's department and other agencies.

The Show Low Fire District worked closely with the local police, sheriff's department, and the state highway department to plan for a possible evacuation. Among other things, they conducted tabletop exercises well before the fires broke out to determine how a fire might develop and how to conduct an evacuation.

The third major task was preparing the public.

"Early last spring, we started preparing people that this event was inevitable," says Owens. "We started early on evacuation education and how people should be prepared and what they should take with

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Aerial view of a burning wildfire near Heber, Arizona.

them and things to do with their homes when they left.”

“In a community where you’ve got a wildfire threat, the community is remiss if it doesn’t have some kind of evacuation drill at least once a year to let people know what they need to take, what to leave, and what route to take,” says Larry Humphrey, incident commander for the National Interagency Incident Management Team during the first days of the fire and, later, one of four incident commanders. Humphrey, who normally works as a fuels specialist with the Bureau of Land Management’s Safford, Arizona, office, suggests that the beginning of the fire season is a good time for such a drill.

Evacuation education isn’t easy in the kind of communities affected by the Rodeo-Chedeski fire because of their resort-like nature.

“Most of our residents are summer people,” says Scholl. On summer weekends, most of Forest Lakes’ 900 houses

are likely to be occupied, but only about 200 people live there year-round.

“You’re trying to get word to people who don’t come to meetings and things like that,” Scholl says. The community newsletter ran an article about evacuations a couple of years before the fire, and Scholl says it would be a good idea to run such an article annually to get word out.

Show Low, with a larger population and more year-round residents than Forest Lakes, was in a better position to get the word out, and the Show Low Fire District pushed hard.

“We did mailers and had a constant information program on radio and television and with handouts,” says Owen.

The county’s emergency services department provided the money for the mailers. In addition, the fire district sent speakers to homeowners’ organization meetings and to retirement communities to spread the word.

“It was just about a full-time job for a

few people,” says Owens. But, he adds, it paid off.

“We’re confident that 99.9 percent of the community up here had an evacuation handout in their homes,” he says.

### Communicating during a fire

Keeping the public informed is even more important once a fire breaks out. One way to do this is to use a series of alert levels to warn residents how great the danger has become. Humphrey says that alert levels work well in moderation.

“I don’t think people can memorize more than three alert levels,” he says.

Because no one was prepared for a fire that moved as quickly or got as big as Rodeo-Chedeski, communicating with the evacuees and the people in the threatened communities was a problem.

“There were never enough avenues to get information out,” says Jim Paxon, the information officer for Humphrey’s initial incident management team who became the “voice” of the fire to the media. “We

used law enforcement officers, and we used Navajo County's 911 rollover dial system. We had door-to-door contact, and we used community television, but that was still one of the real problems."

The rollover system calls a list of numbers in succession and delivers a recorded message. Unfortunately, the telephone system proved completely inadequate, particularly since less than half the evacuees stayed in the evacuation centers. There were only two information lines the public could call to get information, and they were jammed.

"Navajo County is working on its phone system and using grant money to enhance its 911 call out system," Paxon says. "They're consulting Ruidoso and Los Alamos (sites of recent major wildland/urban interface fires) to see what technology they're using."

In fact, one of the most important lessons of the Rodeo-Chediski fire was that it's worth making a great effort to find out where evacuees are going and how to reach them after they leave.

"I don't think we did enough there," Paxon said.

The Web can be important in getting information to evacuees, Paxon says, pointing out that the fire district for Pinedale had a very good Web site, which became an important resource. However, the Web requires a different approach, one that Paxon says fire organizations are still learning how to use.

"We're used to the information organization pushing information out," he said. "Now with Web sites, people can pull it in. That's something we're going to have to get better at. We're just learning how to use hot links and other ways to use the technology."

For Mel Epps, chief of the Heber-Overgaard Fire District, communicating with the public was such a problem that he isn't going to leave it to outside agencies in the future.

"Our biggest lesson was that we left the public information job to someone else, and it seems they dropped the ball and that created a lot of havoc," Epps says. "The people handling the information didn't do a good job. The evacuees were not kept abreast of what was going

on. There were many false reports, things like the fire had gone right through the center of town, the fire station was gone. The news companies were putting stuff like that on the 6 p.m. news."

Because the firefighters from the Heber-Overgaard area were so busy fighting the fire, they didn't realize that false reports were getting out.

"We should have known better than that," Epps said. "I was the public information officer for the city of Mesa, Arizona, for a year and a half, and I should have realized what was going on."

Epps believes that the media should have been allowed into the area earlier.

"I think we need to conduct them in ourselves, and [in the future] we'll take responsibility for doing that," he says.

Because the communities were so hard hit, people from the Heber-Overgaard area were desperate for information. After the fire had passed through the communities, but before evacuees were allowed back in, Epps says the people at the evacuation centers were "like a bunch of children, they were so eager to find out what was happening."

Because the towns don't have local television stations, the Heber-Overgaard Fire District is trying to work with local ham operators to put a radio in the fire station that firefighters can use in the event of another evacuation. The fire district plans to issue reports hourly to the evacuation centers.

### Trigger points

Another important tool in managing evacuations is trigger points. A trigger point is a clearly defined location or landmark with which residents are familiar and against which they can measure a fire's progress. Using a landmark as a trigger point helps everyone gauge when an evacuation will be ordered and allows the public to monitor the need to evacuate.

Part of setting a good trigger point is technical. It is the job of the fire behavior analysts and the meteorologist to establish the fire's probable behavior, including the speed at which it is likely to move.

"We told the community up front we were setting trigger points, and as the fire approached these trigger points, we kept

## LESSONS LEARNED

- Hold drills and exercises.
- Provide the community with information on evacuation.
- Warn the community as early as possible.
- Don't establish more than three stages of alert.
- Set and publicize trigger points, and revise them if necessary.
- Don't evacuate too early.
- Coordinate with other agencies and respect each other's expertise.
- Plan for pets and livestock.

them informed," says Owens. "We kept them aware of what was happening with the fire so it wasn't a surprise."

However, Humphrey says trigger points shouldn't be set in stone. Changing conditions may require changing trigger points.

Humphrey recalls working the Moose fire in Glacier National Park in Montana in 2001, where the trigger point was set at a creek. If the fire jumped the creek, the people in the fire's path would be evacuated. However, the fire stopped on the far edge of the creek and stayed there for several days. Eventually, the trigger point was moved from the creek to a ridge, but Humphrey says it should have been moved sooner.

"We kept people in a state of suspense so long the edge wore off," Humphrey says.

Humphrey also stresses that evacuations should be done early, but not too early. If an evacuation is ordered too soon, taking people out of their houses for several days before the fire arrives, pressure to get back into areas that haven't yet been hit will build, he says. If people are allowed back in and the fire picks up, they may have to be evacuated again.



"When you have to evacuate people from the same point twice, it really turns ugly," Humphrey says.

One way to roughly measure the success of pre-evacuation education and planning is to count the number of traffic accidents during the evacuation. Even a minor accident can cause major problems on the two-lane roads that predominate in the fire area.

"We were pleased with the way the evacuation went," Owens says. "There were no accidents, no injuries, and no bottlenecks. It went just like clockwork."

### Coordination

Any wildland/urban fire is an exercise in coordination, and this is doubly true of evacuations. Although the fire team advised evacuating the communities, the actual decision as to what areas to evacuate and when were left to the sheriff and the other local law enforcement officials, whose decisions didn't always coincide with the recommendations.

"For the Pinetop-Lakeside area, the incident management team recommended evacuating Show Low but not Pinetop or Lakeside," says Humphrey. "The sheriff's office decided to evacuate all three communities." The sheriff was concerned about looting, access control, and other issues not directly related to the fire. The difference, Humphrey says, was that "we were looking at it from a fire management standpoint, and the sheriff was looking at it from a people standpoint."

"That's where you need to have a good discussion with the people responsible for the evacuation," Humphrey says. "You've got to let them know what the problems and dangers are, and they have to make a decision on who is to be evacuated."

The key to a successful relationship is to acknowledge each other's expertise and respect one another's concerns, Humphrey says.

Another problem was people who refused to evacuate.

"Everyone remembers Harry Truman and Spirit Lake at Mount St. Helens," says Paxon, referring to the man who refused to evacuate before the volcano erupted and died in the blast. "We had some evacuees who refused to leave. I

understand their concern, but we're going to be going to memorial services if people continue to do that and get caught."

"If we have another evacuation this summer, I'm going to be curious as to how many people won't leave," Epps says. "That will compound our problem and make things critical for us."

The other problem with people who don't leave is that they put firefighters' lives at risk if they become trapped.

"We're going to put firefighters at risk because they'll try to rescue those people, even if the command says no," Paxon says. "That is just plaguing me."

"Do we just say to these people 'Okay, you've made a personal decision and we respect that, but we're not going to go in and get you [if the fire endangers you]?' I don't think we've crossed that threshold where we won't go in and get someone," he says.

This problem is likely to be worse in the next big Arizona fire because a number of people from the community of Clay Springs who defied evacuation orders and stayed behind to save their houses have become something of heroes in news stories. That, together with the loss of houses in the Rodeo-Chedeski fire, is likely to encourage others to stay behind the next time.

Further complicating the issue is the fact that Arizona law doesn't allow people to be ordered to leave their homes. If someone insists on staying, there's nothing the fire teams can do about it. It might be possible to change the law to force people to obey an evacuation order, but observers familiar with the Arizona legislature are skeptical that it would make such a law. What's more, such a law would be very difficult to enforce in forested terrain spiderwebbed with dirt roads and few natural choke points.

Paxon said the fire teams and other officials are still working out what to do when people refuse to evacuate.

### Pets and livestock

Not all lessons are as obvious as preparation. Take the pets and livestock left behind, for instance.

"In a lot of community evacuation planning, [animals] are quite often over-

looked by the sheriff's office and others," Humphrey says. "They've got places for people to go, but they don't think about the horses, cows, and cats and dogs. I think we had more problems with people trying to get back through the roadblock because their cat was locked in the house or their rabbits were out of water," Humphrey says. "It got to be pretty time-consuming, escorting people back in."

Volunteers who went in to feed and water animals and rescue pets helped, he says. In addition, animal shelters as far away as Phoenix cooperated in housing pets separated from their owners.

One of the most remarkable things about the Rodeo-Chedeski fire was that no one was killed or seriously injured, in spite of the fire's size and intensity.

"National Incident Management Teams have lots of experience and make safety first and foremost in their minds," Humphrey says. There are 17 National Interagency Incident Management Teams across the nation, generally consisting of 35 members from fire and emergency management agencies. These teams usually manage large and complex wildland fires, floods, earthquakes, and other natural disasters.

Although some communities, such as those around Overgaard-Aripine, were hard hit, many others were saved. Days of intense effort halted the fire within a quarter of a mile (0.4 kilometers) of Show Low, for example. Likewise, the communities of McNary, Hon Dah, Lakeside, Forest Lakes, and Heber remained undamaged.

Communities from Forest Lakes to Show Low are now working on their evacuation plans and educating residents about evacuation, but this isn't a case of locking the barn door after the horse is gone.

"We could be right back in the same business next year," Humphrey says. "We have a lot of drought-stressed and bug-killed trees out there waiting for an ignition event. We could be in the same or worse situation next year." ❄

**RICK COOK** is a freelance writer living in Phoenix, Arizona. He started covering fires and fire issues as a newspaper reporter and editor in the 1960s.

"WAIT A MINUTE, LET'S NOT REINVENT THE WHEEL HERE. LET'S USE A PROGRAM THAT'S TRIED AND TRUE."

Those were Mike Byrne's thoughts when he found himself participating last year in the creation of an educational campaign for the new Citizens Corps, an ambitious federal program intended to better prepare U.S. communities to respond to disasters by harnessing the power of volunteers through education, training, and volunteer opportunities.

Byrne was involved in the campaign as a result of his new role as senior director of response and recovery at the then-Office of Homeland Security. In his former position with the New York City Fire Department, however, he'd been trained by NFPA to introduce *Risk Watch*<sup>®</sup> and *Learn Not to Burn*, to classrooms in his community as a 1996 *Learn Not to Burn* Champion. To him, the two NFPA programs seemed a perfect fit with Citizens Corps' effort. >>

# POINT OF **contact**

NFPA JOINS FEMA IN A NEW  
INITIATIVE TO HELP CITIZEN  
VOLUNTEERS PREPARE FOR  
DISASTERS

by HALLIE EPHRON TOUGER  
illustration by WHITNEY SHERMAN



Sherman

As a result of Byrne's insight, NFPA became the first official affiliate of the Citizen Corps initiative, coordinated by the Federal Emergency Management Agency (FEMA), and *Risk Watch: Natural Disasters*® became the vehicle for a joint education initiative slated to begin in mid-2003. FEMA and NFPA signed the partnership agreement last October at Arlington County, Virginia, Fire Department's Station Nine, one of the first stations to respond to the Pentagon on September 11. According to FEMA, FEMA and NFPA will "together encourage communities to develop fire safety training and education initiatives for children and families through the Citizen Corps network of state and local councils."

The goal of Citizen Corps is to encourage emergency preparedness for individuals and families to prepare for major emergencies and to encourage people to volunteer in community-service activities that back up first responders overloaded by a major disaster, says Ralph Swisher, manager of FEMA's Community and Family Preparedness Program. President Bush announced the formation of the Citizen Corps during his 2002 State of the Union address.

According to Karen Marsh, acting chief of FEMA's Community Coordination Branch, Citizen Corps "is bringing together a lot of existing [FEMA] programs and activities, and giving them new emphasis. Citizen Corps is asking the first-responder community to come together and work with the volunteer community, matching the expertise of the first responder with the manpower of volunteer citizens, and to form Citizen Corps Councils."

These councils, which will consist of leaders from neighborhood groups, emergency management agencies, volunteer groups, and other relevant sectors of communities across the United States, are intended to serve as the operating structure that will bring the Citizen Corps to the local level. The initiative recognizes the critical role citizens play in most emergencies.

"It's very clear that the true 'first' responders are citizens who happen to be on the scene," says Marsh. "That's our front line—our citizens. We need to be sure those people are educated, informed, and participate on an ongoing basis, supporting first responders." Whether it's an earthquake or a terrorist attack, the first 72 hours of any response are critical.

"NFPA was the prime organization in the fire community to turn to. Several years ago, NFPA started reaching beyond fire protection. Today, fire departments are regularly called in to deal with a whole range of disasters."

In October 2002, then-FEMA Director Joe M. Allbaugh said FEMA was preparing to recruit and train 400,000 Citizen Corps volunteers over the next couple of years in medical care and other skills so that they could be ready for the next possible terrorist attack. The plan is to train community leaders, such as fire officials and police officers, to train volunteers in the community.

#### **NFPA becomes Citizen Corps affiliate**

Shortly after forming, Citizen Corps management realized that it needed to add a fire-related organization, and NFPA was the compelling choice.

"NFPA was the prime organization in the fire community to turn to," says Swisher. "Several years ago, NFPA started reaching beyond fire protection. Today, fire departments are regularly called in to deal with a whole range of disasters. NFPA expanded the scope of what they address well before September 11, for example, when it added accident safety to *Risk Watch*. We appreciate NFPA's effort to create a building code that mitigates the impact of disasters—it fits with the big-picture goal of making people safer. For NFPA, moving to expand their standards to reach beyond fire was very timely."

There are five charter Citizen Corps programs: Neighborhood Watch, Volunteers in Police Service, Operation TIPS (Terrorism Information and Prevention System), Community Emergency Response Teams (CERT), and the Medical Reserve Corps. To these, Citizen Corps added *Risk Watch: Natural Disasters*, a new training module that augments the award-winning *Risk*

*Watch* curriculum. *Risk Watch: Natural Disasters* will play a key role in disseminating training at the community level.

NFPA developed the new module, designed for use in kindergarten through grade eight classrooms, with technical support from FEMA and major funding from the Home Safety Council, a not-for-profit organization founded by Lowe's Home Improvement Warehouse. When the Citizen Corps was formed, work had already begun on the new module, which was originally intended to focus on preparing for natural disasters. After September 11, however, the focus of the module shifted.

"The focus was going to be on helping children and their families prepare for the six leading natural disasters—floods, earthquakes, hurricanes, tornadoes, winter storms, and wild-fires," says Meri-K Appy, NFPA's former assistant vice-president for Public Education. "After 9/11, when all of us at NFPA were working hard to ensure that our message and our efforts were truly relevant to the safety challenges of the nation, we saw the opportunity to revise our plan and expand *Risk Watch: Natural Disasters* by one component: general preparedness.

This would prepare families to withstand any major upheaval, including an intentional act of terrorism.”

Appy recalls the initial meeting with Citizen Corps to explore how NFPA could work with the organization.

“We discussed how *Risk Watch* and other NFPA materials could be used by Citizen Corps at the local level to help spread the word about the things people can do in their homes to be more prepared for any disaster, including an act of terrorism,” she says.

When Appy was invited to attend the meeting, she brought along David Oliver, president and executive director of the Home Safety Council.

“The Home Safety Council was there on the ground floor with us when *Risk Watch* began in 1998,” says Appy. “Consistent with their mission and proud of their relationship with NFPA and what we’d done together, the Home Safety Council realized, as did NFPA, that much more was needed at the community level to help insure public safety.”

### Looking back: educational outreach and partnering

The expansion of *Risk Watch* is the most recent example of NFPA’s educational outreach. NFPA’s first full-scale educational program was the Learn Not to Burn curriculum, created in the 1970s.

“It was a flagship fire safety curriculum that addressed the problem of public education in a very specific way by targeting young children, helping them learn to make better decisions about fire safety and burn prevention,” says Appy.

The development of *Risk Watch*, with its focus on injury prevention, reflected a shift that began in the 1960s, as fire departments across the nation began to respond to more medical emergencies.

“Fire departments began to approach us saying, ‘We’re first on a scene if a child is injured on a bike or drowns in a pool, and we’re not doing anything with prevention tools,’” says Appy.

That led NFPA to research a broader approach to fire and life safety.

“Knowing we weren’t experts on all aspects of injury prevention, we worked

with leaders in the country and got their expertise,” says Appy. “We combined that with a careful process to develop a more comprehensive program that addressed the leading cause of death to children in our country: unintentional injuries.”

### Delivery system harnesses volunteers

Educational outreach involves not only the creation of excellent materials. An effective delivery mechanism is also essential. *Risk Watch* incorporates both.

“*Risk Watch* isn’t only an educational program that’s well developed and well tested. Even more important is the delivery system,” says Appy. “Our trained NFPA Champion teams at the local and state level and the Lowe’s Heroes—that’s where the rubber meets the road in the community.”

NFPA expanded the *Risk Watch* Champion program in 2000 by creating Champion Management Teams (CMTs) that include representatives from the fire service, law enforcement, and the health and education communities. By the fall of 2002, 28 Champion Management Teams in 26 states and the Canadian province of Ontario were working in hundreds of communities and thousands of classrooms. *Risk Watch* has also been implemented through Lowe’s Heroes, a volunteer program for employees of Lowe’s Home Improvement Warehouse. Oliver says that about 40 percent of the employees who participated in the program in 2001 elected fire safety and teamed up with their local fire department.

As *Risk Watch* expands into disaster preparedness, NFPA reaches out to new partners with new areas of expertise.

“We’ll be working hard to engage emergency managers on our Champion team, people who have expertise others may lack, for example, in hurricane response, and working together to bring a new level of expertise to safety planning,” says Appy.

Now, through Citizen Corps Councils, more volunteers will be available to help deliver the safety messages in *Risk*

*Watch*: Natural Disasters.

FEMA’s Marsh describes the synergy she envisions.

“We disseminate the NFPA materials through the network of Citizen Corps Councils,” she says. “NFPA would promote the formation of Citizen Corps Councils through our networks. NFPA is saying it’s not just about fire prevention—start a council and get more involved in homeland security and community and family preparedness.”

### Filling the knowledge gap

NFPA and the Home Safety Council are proud to be working with Citizen Corps to provide citizens with survival skills and information that can help them survive a disaster.

“At the Home Safety Council, we’re thrilled to see all these new partners and new synergies,” says Oliver. “FEMA is right there with technical review and their support of training. Now, through Citizen Corps, they’re there to lend their support through local Citizen Corps Councils.”

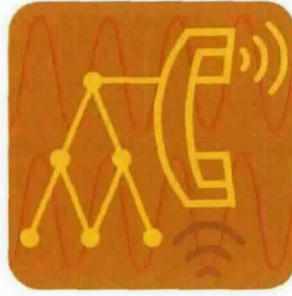
FEMA is expected to become the go-to agency for state and local governments that want to prepare for terrorist attacks and other emergencies. And together, says Oliver, “we’re ensuring that *Risk Watch* is alive and well, and continues to grow beyond the initial *Risk Watch* to incorporate the natural disaster curriculum.”

Marsh sees a great potential for more future collaboration.

“I’m very optimistic looking ahead to what we can do with NFPA to continue expanding the range of materials, not just for schools but also for general public education. There’s a good deal that we can and ought to do jointly.”

The Citizen Corps Web site, [www.citizencorps.gov](http://www.citizencorps.gov), provides more information and lists the more than 200 local councils that have already been formed. Information on the Home Safety Council guide “Family Disaster Plan and Survival Kit” is available on the Web at [www.loweshomesafety.org](http://www.loweshomesafety.org). ❁





# F O U R W A R N E D

**McKinsey & Company** spent five months interviewing FDNY personnel, examining transcripts of internal departmental interviews, reviewing dispatch records and communications tapes, and speaking with experts worldwide to develop the best practices for responding to major disasters.

## THE RESULT:

A REPORT THAT  
RECOMMENDS  
IMPROVEMENT IN

## FOUR ESSENTIAL

### AREAS:

**OPERATIONS,**

**PLANNING &**

**MANAGEMENT,**

**COMMUNICATIONS &**

**TECHNOLOGY,** AND

**FAMILY & MEMBER**

**SUPPORT SERVICES.**

**WHEN THE FIRST PLANE STRUCK** the World Trade Center on September 11, 2001, Salvatore Cassano, chief of Operations for the New York Fire Department (FDNY), was at headquarters working on a plan to equip all the city's firefighters with new radios that would include identifiers to alert chief officers to the identity of each transmission. Unfortunately, the move came too late, and FDNY's radio problems on that fateful day have been well documented.

So when city officials selected the consulting firm of McKinsey & Company to evaluate the emergency response to the terrorist attacks, it was no surprise that the issue of radio communications was at the forefront. However, it may have been surprising how far-reaching the consultant's conclusions were. >>

by PAM WEIGER ■ illustrations by CELIA JOHNSON

McKinsey & Company's much-anticipated report, released last August, makes dozens of recommendations that already seem to be changing the way the fire service nationwide will deal with future mass casualty and terrorist-related incidents.

"We live in a new age, and being a first line of defense, fire departments across the country should now realize

months and more than 1,000 hours interviewing more than 100 FDNY personnel, examining transcripts of hundreds of internal departmental interviews, reviewing dispatch records and communications tapes, and speaking with more than 100 experts worldwide to develop the best practices for responding to major disasters. The result is a report containing rec-

items are already being worked on."

### The most pressing issue

The radio project Cassano was working on began in March 2001 and was to be pilot-tested that September. After September 11, the initiative moved forward with the goal of getting new radios into the hands of each FDNY firefighter by the beginning of 2003 with full roll-out of the



LONG-TERM PLANS TO IMPROVE RADIO TRANSMISSIONS INVOLVE REQUIRING BUILDING OWNERS TO INSTALL REPEATERS THAT ARE COMPATIBLE WITH FIRE DEPARTMENT RADIOS—AN EXPENSIVE PROPOSITION.

what we face," says Cassano, who participated in the World Trade Center incident and sat on the McKinsey Report steering committee. "We've been talking to departments all over the country, but I think we realize we'll have to take the lead."

McKinsey & Company spent five

ommendations in four essential areas: operations, planning and management, communications and technology, and family and member support services.

"All the report's recommendations are doable if the finances are there," Cassano says. "We have the people and the capability to do it, and most of the

program to be completed no later than February 8. The fire department is now facing the more difficult task of figuring out how to get them to work with repeater systems in the city's buildings. The McKinsey Report notes that early in the September 11 incident, command chiefs decided not to use the repeater in

## McKinsey Report Organization

This report has four parts.

**Part I** is a summary of the key events of the FDNY response on September 11, including events related to command and control, communications, and resource deployment. It has separate sections on the response by Fire and EMS personnel.

**Part II** contains recommendations for the FDNY across four areas:

**Operations:** Broader deployment of the Incident Command System, development of the Fire Department Operations Center, creation of Incident Management Teams, improvement of recall, mutual aid and staging processes, and expansion of hazardous materials capabilities.

**Planning and Management:** Improvement of planning and management processes.

**Communications and Technology:** A new process to identify the Fire Department communications and technology needs, and test, acquire and deploy solutions.

Also, solutions to a number of urgent needs concerning communications, personnel tracking and information management.

**Family and Member Support Services:** Enhancing the system for notifying families of injured or deceased personnel and providing counseling services to personnel and their families.

**Part III** contains a discussion of additional issues to be addressed, including inter-agency coordination and joint planning.

**Part IV** contains exhibits that provide additional detail and graphic illustrations to support the material contained in Part I.



Building 5, which served the whole WTC complex, because it wasn't working properly. However, a subsequent analysis by the Port Authority of New York and New Jersey indicates that it was.

"I have no comment on that report, other than to say we still have to see how effective the repeater was," Cassano says. "We know it was partially working because we've heard some of the most heroic actions on the tapes, but I'm not so sure it was operating properly at all times."

Long-term plans to improve radio transmissions involve requiring building owners to install repeaters that are compatible with fire department radios—an expensive proposition. The report tabulated the cost of ensuring reliable communications in the city's 2,000 or so high-rise buildings at as much as \$250 million.

The fire department is also looking at the police department's existing communications infrastructure. Initial

These communications issues aren't confined to New York City.

In the United States' second largest city, the City of Los Angeles Fire Department has taken a close look at many of the McKinsey Report recommendations, including improving radio communications. The department had already tested repeaters for reliability in every one of its 775 high-rise buildings, and is now emphasizing the importance of adequate communication in all new construction and retrofits. Fire department personnel also carry police radios to communicate directly with law enforcement officers at emergency scenes, and the Los Angeles Fire Department has exchanged radios with neighboring fire departments to improve mutual-aid responses. In addition, the department is using federal grant money to look at a long-term project to develop true interoperability.

"We have years of experience with

to place radios with every firefighter by the first of the year. The department also worked out agreements with building officials to ensure that building representatives will meet firefighters inside the buildings with radios at the onset of an emergency.

"We sat down with our battalion chiefs to critique ourselves and plan to do an in-depth analysis of the report and the events to critique what we're doing," says Charlotte Fire Chief Luther Fincher. "We've already looked at our buildings to see if any were constructed like the World Trade Center, and they weren't."

### Leading the way

Another major focus of the McKinsey Report was command and leadership. The report points out that "FDNY must make a renewed commitment to leadership, accountability, and discipline at all levels, in the field and at headquarters."



PERSONNEL RECALL PROCEDURES, WHICH THE REPORT NOTED HADN'T BEEN ACTIVATED FOR MORE THAN 30 YEARS, HAVE ALSO BEEN CHANGED.

tests using that system have shown some promise.

In the short term, however, portable repeaters and base-station radios will fill the communication gap. Battalion chiefs' vehicles were equipped with cross-band mobile repeaters before September 11, and the department is now looking to increase the wattage of those units so they'll work in different situations. Cassano says the department is also trying to get more powerful, expanded units in vehicles citywide, not just in Manhattan. In addition, chief officers will carry base stations with them to upper floors to enhance radio signals.

earthquakes, rioting, flooding, brush fires, and political conventions, so we were conscious of problems associated with overloading the system before 9/11," says Bill Bamattre, chief of the Los Angeles Fire Department. "Even as large as L.A. and New York City are, you can still be overwhelmed by large incidents."

In Charlotte, North Carolina, the nation's second-largest banking center, the fire department is working with the banking community to ensure clear communications inside the city's buildings, many of which tower 60-plus stories. The Charlotte Fire Department used federal grant money

Although Chief Cassano maintains that department leadership "has always been there," he says that, in this new day of terrorism, some changes have to be made in the FDNY system. And they have been. For example, the department has banned the common practice of allowing an extra person or two to ride on a unit simply because they might be helpful. While Cassano believes that practice was more indicative of dedication than lack of discipline, only people assigned and scheduled to work are now allowed to respond to an incident.

Personnel recall procedures, which

the report noted hadn't been activated for more than 30 years, have also been changed. They are now grouped into separate packages, allowing for the recall of specific bureaus and specific services such as hazardous-materials teams. Using a telephone tree system—the department plans to move to pagers eventually—officers recall personnel to a specific mobilization point, based on written criteria that dictate when and what type of recall package should be activated. FDNY has tested the new system in drills, with favorable results.

“You can't have 1,500 people show up at the incident without specific direction, tools, and equipment,” says Peter Hayden, the department's assistant chief of Operations. “We've also changed our staging protocol to put a chief in charge of staging to ensure that all units report in, and stay in, staging until told to move.”

but everyone needs training in the planning and logistics elements. Company and chief officers need more training in deployment and use of specific functions.”

The Fulton County Fire Department near Atlanta, Georgia, is using the McKinsey Report to spur interagency cooperation and expanded use of its incident management system, as well.

“I had suspected there were command issues—even in a perfect system, you'll have some issues with that many people involved,” says David Daniels, Fulton County fire chief. “The whole of public safety is a pretty predictable group of folks, bound by tradition.”

Daniels, whose department has implemented a rigorous incident management qualification system and training process during the past year, sent a synopsis of the McKinsey Report to the county's police chief in

dent, specialized incident management teams, or IMTs, responded from as far away as Alaska to help New York. The McKinsey Report recommends that FDNY develop at least two IMTs consisting of specialized, highly trained people who would be activated during major incidents. Cassano says there are currently no IMTs east of Mississippi, and FDNY would like to be at the forefront of creating such teams. In January, the department signed a memorandum of understanding with the Department of Agriculture to train 63 FDNY members beginning in late February. The Forestry Service, which has years of experience with IMTs, will conduct two two-week training sessions for the department. By April 1, Cassano says, FDNY will have two full teams ready for deployment as the country's first urban IMTs. The teams will specialize in urban terrorism and could be available to other depart-



THE DEPARTMENT HAS CONDUCTED INTERAGENCY DRILLS AND WORKED ON SHARING RESOURCES, SUCH AS THE POLICE HELICOPTERS, WHICH ARE NOW BEING USED FREQUENTLY AS AERIAL OBSERVATION POSTS FOR CHIEF OFFICERS.

The McKinsey Report recommends increased use of the incident command system (ICS), which Cassano says New York has used for years, although some components, such as logistics and finances, had never been tested to such a large degree. The department has expanded its capabilities in those areas by increasing the number of chief officers from 10 to 18 to help manage large disaster scenes and by getting other city agencies on board with ICS.

“ICS training is a considerable undertaking when you're trying to train 14,000 people,” Hayden says. “We're good with the operations part,

an effort to introduce incident management into all agencies across the county. At Chief Daniels' urging, the Fulton County Board of Commissioners is considering a resolution to adopt the National Interagency Incident Management System (NIMS) model as a county standard.

“We're working out the details among all public safety directors so that it's not a fire department thing, but a public safety thing,” Daniels says. “We had a pretty good relationship to begin with, and it's only gotten better with common ground and common areas that need improvement.”

During the World Trade Center inci-

ments once they're up and running. The report estimates the two teams will cost the city approximately \$500,000 annually. Meanwhile, the department has been using temporary teams on a smaller scale.

#### **Tracking personnel**

Noting that more than 200 fire units—approximately half of the city's apparatus—and more than 100 ambulances responded to the World Trade Center, the report urgently recommends giving chief officers a means of tracking and locating personnel at any time.

The department currently uses magnetic command boards to track units.

Each company officer carries two copies of the “riding list” of personnel on his apparatus, one of which he hands to the command post and the other of which he keeps with him.

“We lost officers and command boards when the towers collapsed,” says Cassano. “We’re now looking at wireless command boards to go along

itself might have mended fences.

“In light of what happened, the attitude changed quite a bit,” he says.

Still, the department has conducted interagency drills and worked on sharing resources, such as the police helicopters, which are now being used frequently as aerial observation posts for chief officers during multiple-alarm fires.

peer counselors trained in all areas of family support.

The San Francisco Fire Department has also heeded the recommendations of the McKinsey Report, abiding particularly by its emphasis on training. It’s redirecting the focus of its exercises towards mass casualty and weapons-of-mass-destruction drills and



## ACTING ON THE RECOMMENDATION, THE FIRE DEPARTMENT ESTABLISHED A COMMISSIONER FOR FAMILY ASSISTANCE TO EXPAND COUNSELING AND SUPPORT SERVICES.

with the new field radios with IDs.” Along with the new field radios placed in service in February, all officers at the rank of battalion chief and higher were scheduled to receive radios with LED screens to identify the firefighter radio transmitting the signal. The screens also indicate whether the firefighter is transmitting in regular or emergency mode.

At the report’s suggestion, the department has also created a technology steering committee to look at ways to take advantage of existing technology in areas such as tracking both firefighters and victims. The committee, staffed by civilians and operations personnel, is developing specifications for electronic command boards and radio technology.

### Poor coordination

Perhaps the most scathing observation in the report was the description of the dysfunctional relationship between New York’s firefighters and police officers. The report goes so far as to blame the poor coordination and communication between the two agencies for the fact that “potentially important information on the structural integrity of the building never reached the incident commander.”

Cassano believes the experience

In its final segment of recommendations, the McKinsey Report addresses the issue of family and member support. Before September 11, FDNY’s infrastructure was designed to function in response to incidents that resulted in only a few casualties. As the report notes, however, “the events of that day created a need for family and member support services vastly greater than the capabilities of the existing system.” The report recommends a “flexible infrastructure and process” to handle family needs in case of a future large-scale event.

Acting on the recommendation, the fire department established a Commissioner for Family Assistance to expand counseling and support services. To provide a flexible infrastructure, FDNY will contract with an outside consultant to help notify families during large loss-of-life incidents.

“There are companies out there that do this type of thing after airplane crashes and other incidents,” Cassano says. “We need to have the ability to bring in these consultants quickly.”

“I brought this issue up two years ago,” says Mario Trevino, chief of the San Francisco Fire Department, whose “stress unit” team members were called to New York to help with family support issues. The team consists of

is building a third heavy-rescue squad. In November, the San Francisco department utilized Candlestick Park for a mass casualty drill that featured 650 volunteers in a mock plane crash to which dozens of local agencies responded. The department is also concentrating efforts on planning. Chief Trevino, who chairs NFPA’s Metropolitan Fire Chiefs Section, is seeking to add, through the budget process, a management-level planning position that will take responsibility for developing a long-range plan for the department. The 5-to-10-year plan will include training, facilities, apparatus, and every other component of the department’s needs.

In New York, the fire department is moving aggressively towards implementing both strategic and long-range plans. A staff chief now works full-time developing an operational planning unit and scheduling exercises to enhance the planning process.

“McKinsey did a good job of reducing to writing what we felt the department needed to do,” Hayden says. “And it’s all achievable.”

“The biggest change today is an awareness that NYC is vulnerable. The whole country feels that way,” Cassano says. “We absolutely have a better response today.”

### Special with this issue:

a **Guide for NFPA section members** that tells you how to use your section privileges to get the most from your NFPA membership. Keep it handy—it will help you solve problems faster, build your professional credentials, and advance your career!

## Architects, Engineers, and Building Officials

**WEB SITE:** <http://www.nfpa.org/aebo>  
**SECTION CHAIR:** John Kampmeyer, Triad Protection Engineering Corp., Springfield, Pennsylvania

### HOT ISSUES

**AEBO, World Organization of Building Officials to sponsor WSCE™ program**  
NFPA's AEBO Section will sponsor a program, titled "Protection of Icon Buildings—Keeping Them Safe, Useable, and Open to the Public," at NFPA's World Safety Conference and Exposition™ (WSCE) in Dallas, Texas, this May. The program, which will include technical presentations by members of both AEBO and World Organization of Building Officials on the design, permitting, and inspection process, is designed to give attendees a global overview of several important building issues.

AEBO will also sponsor four other programs at the WSCE, in addition to the general section business meeting. These programs include a four-hour presentation on "Working with NFPA 1 and NFPA 5000," and three hour-long presentations devoted to "Applying NFPA 5000, Chapter 34—High-Hazard Contents," "Standardizing the Plan Review and Inspection Process," and "Construction Regulation Issues from the International Perspective."

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## Aviation

**WEB SITE:** <http://www.nfpa.org/aviation>  
**SECTION CHAIR:** Dennis Kennedy, P.E., Ansul, Inc., Marinette, Wisconsin

### HOT ISSUES

#### Staffing Levels Determined

The Aircraft Rescue and Fire Fighting (ARFF) Committee met in San Antonio, Texas, in October to finalize its revision of NFPA 403, *Aircraft Rescue and Fire Fighting Services at Airports*. The committee developed minimum airport fire department staffing numbers, based on airport category:

#### Minimum Required ARFF Personnel

Airport Category/Personnel	
1-3	2
4	3
5	6
6	9
7,8	12
9,10	15

To explain these numbers, the committee provided the following summary:

#### Category/ARFF Personnel

- 1-3 Two ARFF-trained personnel.
- 4 Three ARFF-trained personnel, including an incident commander
- 5 Six ARFF personnel, including an incident commander and two persons trained for rapid intervention
- 6-10 The minimum total number of trained personnel responding shall be based on the equivalent of three per ARFF vehicle. Also provided will be an incident commander and two persons trained for rapid intervention.

The committee recognizes these numbers as minimums and requires airports to perform a task analysis to determine additional staffing requirements. Committee members combined several task analysis methodologies to reflect the most appropriate approach to determining necessary staffing levels. The recommended approach will appear in NFPA 403's annex.

If the committee members agree on the changes, they'll appear in the *Report on Comments*, which can be downloaded from [www.nfpa.org](http://www.nfpa.org). The recommendations can still be debated at the World Safety Conference and Exposition™ in May and appealed to the NFPA Standards Council in July. Unless the work is returned to the committee, the next edition of NFPA 403 will become effective in August.

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## Building Fire Safety Systems

**WEB SITE:** <http://www.nfpa.org/bfss>  
**SECTION CHAIR:** Neal Krantz, Siemens Fire Safety, Livonia, Michigan

### HOT ISSUES

#### WSCE Activities

In addition to a business meeting, BFSS will sponsor two programs at the WSCE in May. Charles Hahl of Gage-Babcock and NFPA's Rich Bielen will present "Premises Security Update," an overview of the premises security project, on May 20 from 4:00 to 5:00 p.m. On May 21, from 11:00 a.m. to noon, Art Black of Carmel Fire Protection Associates and April Berkol of Starwood Hotels & Resorts Worldwide Inc. will present "Household Carbon Monoxide Warning Equipment," featuring an overview of NFPA 72. More information will be posted when available at [www.nfpa.org/bfss](http://www.nfpa.org/bfss).

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78 ARCHITECTS, ENGINEERS, AND BUILDING OFFICIALS  
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79 EDUCATION  
79 ELECTRICAL

80 FIRE SCIENCE AND TECHNOLOGY EDUCATORS  
80 FIRE SERVICE  
81 HEALTH CARE  
82 INDUSTRIAL FIRE PROTECTION  
84 INTERNATIONAL FIRE MARSHALS ASSOCIATION

84 LATIN AMERICAN  
85 LODGING INDUSTRY  
85 METROPOLITAN FIRE CHIEFS  
85 RAIL TRANSPORTATION SYSTEMS  
86 RESEARCH  
86 WILDLAND FIRE MANAGEMENT

## Education

**WEB SITE:** <http://www.nfpa.org/edsection>

**SECTION CHAIR:** Peg Carson, Carson Associates, Inc., Warrenton, Virginia

### HOT ISSUES

#### **We're Alarmed...But Not Panicked**

by PEG CARSON, CHAIR

Many people attended the Education Section session, "We're Alarmed," in Atlanta last fall at which representatives of the National Institute of Standards and Technology (NIST), the Consumer Product Safety Commission (CPSC), NFPA's Fire Analysis and Research Division, and the NFPA Technical Committee on Single- and Multiple-Station Alarms responded to public educators' concerns about alarm audibility, nuisance alarms, premature failure of 10-year lithium batteries, and wireless interconnection of smoke alarms. Audibility was of particular concern in light of recent news demonstrating that children don't always wake when a smoke alarm sounds.

Projects addressing all these subjects are currently underway at NIST and CPSC. For information, visit [www.cpsc.gov](http://www.cpsc.gov) and [www.smokealarm.nist.gov](http://www.smokealarm.nist.gov). We'll post more information on the section Web page as results become available. To read the position statement the NFPA Public Education Division released on this issue, visit the Education Section Web page.

#### **Song Honors Fire Safety Educators**

by JIM DALTON

**DIRECTOR OF PUBLIC FIRE PROTECTION, NATIONAL FIRE SPRINKLER ASSOCIATION**  
Since the events of September 11, 2001, we've had many occasions to honor our firefighters and first responders. I started out as a firefighter, so I feel good when I see them finally being recognized for their service and sacrifices. However, I also believe that public fire educators are heroes, too, and it struck me that they aren't generally recognized for their contributions.

I wrote a song about fire safety education in honor of all of the heroes who work in that

discipline across the United States every day. The title of the song is "God Bless Fire Safety Education...for Michael," and you can access it at [www.nfpa.org/edsection](http://www.nfpa.org/edsection).

Michael is Michael Collins, executive director of the California Independent Living Council. I met Michael when we participated in the Beyond Solutions 2000 symposium, examining issues related to exiting, early warning, and sprinkler protection for those who can't escape in a timely manner in the event of a fire. Michael, a paraplegic, has since taken a leadership role in helping implement the symposium's recommendations.

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## Electrical

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

**SECTION CHAIR:** Richard Loyd, R&N Associates, Perryville, Arkansas

### HOT ISSUES

#### **Ware Is Member Emeritus of NEC® Technical Correlating Committee**

NFPA has named National Electrical Contractors Association (NECA) member D. Harold Ware Member Emeritus of the *National Electrical Code®* Technical Correlating Committee (NEC-TCC). Ware is the second in NECA's 100-year history to receive such status.

For more than 35 years, Ware has helped create the NEC as a member of various code-making panels and chair of CMP-16. He was also chair of the Technical Correlating Committee from 1991 to 2001.

During Ware's tenure, membership in code-making panels was broadened, and specialized task groups were formed to tackle problems outside the scope of any one panel. He also led the development of a new NEC style guide to help panel members write clear, effective code rules that could be enforced consistently.

"Harold is one of the great leaders of the NEC," says Mark W. Earley, assistant vice president of Electrical Engineering at NFPA. "He saw the need to make sure that, as the *National Electrical Code* evolved to recognize new technologies, it stayed useable and understandable."

Ware is president of Libra Electric Company in Oklahoma City. During his career, he has received numerous honors, including NECA's Coggshall Award and the NFPA Standards Medal. Last year, NECA recognized Ware for his "long service and conspicuous leadership of the *National Electrical Code*."

### 2003 Section Elections

The Electrical Section Nominating Committee has submitted the following report to the section executive secretary. Section officers, Executive Committee members, and Nominating Committee members will be elected at the section business meeting during the WSCE in Dallas in May.

#### **Officers 2003–2004**

**Chair:** Richard E. Loyd, R & N Associates

**First Vice-Chair:** Paul Dobrowsky, Eastman Kodak Co.

**Second Vice-Chair:** H. Brooke Stauffer, National Electrical Contractors Assoc.

**Third Vice-Chair:** James T. Pauley, Schneider Electric/Square D. Company

**Secretary:** Michael I. Callanan, National Joint Apprenticeship & Training Committee

#### **Executive Committee**

##### **Members-at-Large 2003–2005**

Robert Baird, Independent Electrical Contractors  
William Hopple, Simplex Grinnell  
David Kendall, Carlon Electrical Products/Lamson & Sessions

#### **Nominating Committee**

##### **Members-at-Large 2003–2004**

James Daly, General Cable  
Michael Johnston, International Association of Electrical Inspectors

**HOW TO REACH US:** Jeff Sargent, Executive Secretary, +1-617-984-7442, [jsargent@nfpa.org](mailto:jsargent@nfpa.org)

## Fire Science and Technology Educators

**WEB SITE:** <http://www.nfpa.org/firescience>

**SECTION CHAIR:** Ronald Hopkins, Eastern Kentucky University, Richmond, Kentucky

### HOT ISSUES

#### Nominating Committee

During the Executive Board meeting in Atlanta last fall, the section's Nominating Committee membership was formed for this year's elections. Jeff Hartle of Central Missouri State University is chair. Section members interested in becoming a section officer or nominating someone for such a position should contact Frank Florence.

The section elected new members to the Executive Board before last fall's board meeting in Atlanta. For the complete list, visit [www.nfpa.org/firescience](http://www.nfpa.org/firescience).

#### Student Membership Proposed

The section's board recently ratified a proposed change to the section bylaws that opened membership to students. Section

members felt such memberships would give students an excellent opportunity to become active in NFPA. For copies of the application forms, contact staff liaison Frank Florence at [fflorence@nfpa.org](mailto:fflorence@nfpa.org).

The Section Executive Board also discussed its first student-research poster contest. The contest includes graduate-, baccalaureate-, and associate-degree-level categories, and judges will award prizes for first and second place in each category. The contest will be judged at the WSCE in Dallas in May.

Abstracts for the contest were due by February 15, and those whose posters were chosen will be notified by March 15.

#### Section Web site

Work continues on the section Web site. Updates include a list of section officers and directors, and a link to [Firedawg.com](http://Firedawg.com), which lists U.S. fire science degree programs, will be added. We encourage you to check the section site and send updated information to the Webmaster.

**HOW TO REACH US:** Frank Florence, Executive Secretary, +1-617-984-7480, [fflorence@nfpa.org](mailto:fflorence@nfpa.org)

## Fire Service

**WEB SITE:** <http://www.nfpa.org/fireservice>

**SECTION CHAIR:** Terry Allen, Chief, Cambridge, Ontario, Canada

### HOT ISSUES

#### Fatality Investigation Complete

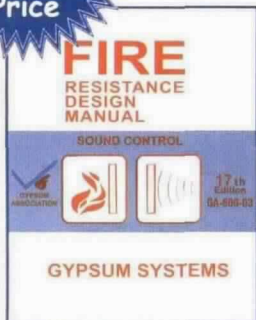
On March 14, 2001, Phoenix Firefighter Brent Tarver died when he lost contact with his company during a fire in a large, cluttered supermarket, according to a report by NFPA's fire investigations unit. Several other firefighters were injured.

The fire began outside the supermarket, which was part of a shopping plaza, and spread to the rear stockroom and the roof. As one engine company fought the exterior fire, others entered the building and surrounding stores to check for fire extension.

Fifteen minutes after entering the supermarket, Tarver reported that his low-air alarm was sounding. His captain directed him and the three firefighters with him to leave the building as a



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team, following the hoseline. As they made their way out, however, one of the men tripped, and two of them lost contact with the hoseline. When the captain emerged from the supermarket, he discovered that two members of the company hadn't come out. At this point, one of the two lost men made the first distress call.

As visibility in the smoke-filled building diminished, several rapid intervention crews entered, following the hoseline, to search for the missing pair. One of the men followed the sounds of their voices, and they helped him out of the structure. They also found the second firefighter, but lost him again when he suddenly stood up, apparently confused after inhaling smoke. He left the hoseline, walking deeper into the building.

Rapid intervention crews eventually found him collapsed deep inside the store. It took crews 32 minutes to remove him because he was located so deep within the store and they encountered so many obstructions on their way out. Efforts to revive him failed, and he was pronounced dead at the hospital.

The full report on the fire can be found at [www.nfpa.org/fireservice](http://www.nfpa.org/fireservice).

**HOW TO REACH US:** Stephen N. Foley, Executive Secretary, +1-617-984-7468, [sfoley@nfpa.org](mailto:sfoley@nfpa.org)

## Health Care

**WEB SITE:** <http://www.nfpa.org/healthcare>

**SECTION CHAIR:** Thomas Haynes, Woodpecker Hill Nursing Home, Greene, Rhode Island

### HOT ISSUES

#### Chair's Corner

#### Participate in the Process

by DICK STRUB, SECTION CHAIR

I'd like to take this opportunity to introduce myself. I'm Richard (Dick) D. Strub, newly elected chair of the Health Care Section (HCS). I've been an active member of NFPA and the HCS for more than 20 years and involved in life safety and fire protec-

tion in the long-term care side of health care for nearly 30 years.

I encourage you to participate in the standards-making process. If you feel something in a particular document should be modified, you can easily offer a proposal at the appropriate time in the code-revision cycle. If you think an action on a document is required after the proposal period has closed, you may submit comments on the proposal during the public comment period. So take the opportunity to submit proposals and comments. And don't forget to support NFPA 5000™, *Building Construction and Safety Code*™. It's a living document, and it behooves us to promote its adoption whenever the opportunity presents itself.

I'm excited about the many opportunities that lie ahead. The Executive Board is committed to improving communication through better use of *NFPA Journal* and other media and to implementing a better means of giving section members opportunities to interact with the Board. The section's Education Committee is also placing more emphasis on the quality, rather than quantity, of our educational offerings at NFPA meetings.

I'll do my best not to disappoint you as chair. With the guidance and participation of the Executive Board, I'll work to increase opportunities for a meaningful exchange of information, education, and experience in health-care fire safety.

Keep an eye on "Section News" in *NFPA Journal*, and visit [www.nfpa.org](http://www.nfpa.org) for more information on section activities. And plan to attend the WSCE in Dallas in May and the Fall Education Conference in Reno in November. The section needs your active participation!

#### Wrapping up the meeting in Atlanta

The 2002 Fall Education Conference program was a great success. On November 17, the Codes and Standards Review Committee reviewed the documents up for adoption at the meeting and briefed section members on those

to be voted on at the 2003 WSCE. This was Tom Bulow's last session as committee chair. He's succeeded by Mike Daniel, who previously chaired the committee. The Executive Board thanked Tom for the time he spent organizing this activity.

The HCS also held its annual election at the business meeting. Tom Jaeger presented the Nominating Committee's report, and the section members unanimously elected the following individuals:

**Chair:** Richard Strub

**First Vice-Chair:** Susan McLaughlin

**Second Vice-Chair:** Thomas Gardner

**Secretary:** Dean Menken

**Director:** Max Hauth

**Director:** Don Bender

**Director:** Dale Wooden

#### What's in store for the 2003 WSCE?

The HCS will hold three education sessions at the 2003 WSCE. The first will be a three-hour codes and standards review during which we'll discuss issues related to the section's interest and develop strategies to address and initiate floor actions.

At the second session, Claude Baker, fire and life safety officer at The University of Chicago Hospitals, will address requirements for hospital evacuation. And the third session will address hospital response to biological and chemical attacks.

#### Looking for representation

The HCS has an opening for a principal member on the Technical Committee on Disaster Management. If you're interested in representing the section, forward a letter outlining your qualifications and a completed application to Richard Bielen, at NFPA, 1 Batterymarch Park, Quincy, MA 02169 or email him at [rbielen@nfpa.org](mailto:rbielen@nfpa.org). You can download the application from [www.nfpa.org](http://www.nfpa.org). All applications will be forwarded to the HCS Executive Board for review and disposition.

**HOW TO REACH US:** Richard Bielen, Executive Secretary, +1-617-984-7279, [rbielen@nfpa.org](mailto:rbielen@nfpa.org)

## Industrial Fire Protection

**WEB SITE:** <http://www.nfpa.org/industrial>

**SECTION CHAIR:** Mike Newman, Johnson & Johnson Company, New Brunswick, New Jersey

### HOT ISSUES

#### Chair's Corner

##### Full Slate of Activities at WSCE

by MIKE NEWMAN, CHAIR

It's hard to believe, but the 2003 WSCE is just around the corner, and, as always, the IFPS has a full slate of activities planned.

The week begins with the Opening General Session at which the winner of the 2002 IFPS Fire Prevention Week contest will be announced. This is an opportunity for IFPS to recognize individuals and their companies for the public education efforts they put forth during Fire Prevention Week.

IFPS will sponsor "Catastrophic Risk Modeling," which will address seismic, windstorm, and terrorism exposure modeling, and Jack Woycheese of Hughes Associates, Inc. will present "Fire Protection Design Considerations for LNG/CNG Fueling Facility." Also planned is a roundtable discussion of "Property Insurance in the Post 9/11 World" that will include representatives of an insurance broker, an industrial insured, and an insurance company. Consult [www.nfpa.org](http://www.nfpa.org) for more details.

Our annual business meeting will also be held at the WSCE, giving section members an opportunity to vote for officers and directors for 2004 and giving the board a chance to update section members on IFPS activities. Please contact the executive secretary with any issues you'd like to present to the board at this meeting so we can include them on the agenda.

If you have ideas to improve the section, suggestions for NFPA meeting speakers, information on new chapters, or anything else, call me at (732) 524-3224, fax me at

(732) 524-2196, or e-mail me at [mnewman@corus.nj.com](mailto:mnewman@corus.nj.com). You can also find contact information for any board member in the section's page at [www.nfpa.org](http://www.nfpa.org).

### 2003 Board Officers and Directors

IFPA members will elect the 2003–2004 Executive Board officers and directors at the annual business meeting. The Nominating Committee has provided the following candidates:

**Chair:** Anthony M Aguilera, Honeywell  
**Vice-Chair:** Michael Snyder, Dow Corning  
**Secretary:** Thomas Gray, Zurich  
**Past Chair:** Michael Newman, Johnson & Johnson

### Directors (three-year terms):

David Philip (expires 2003, appoint to 2006), Nestle Purina  
Terry Marski (expires 2003, appoint to 2006), The Tribune Company  
Diane May, Westvaco (fills slot vacated by Tom Gray, expires 2003, appoint to 2006)

The remainder of the board and their terms of office:

Neal Krantz (2004), Siemens  
Rick Schartel (2004), PPL  
Ron Stein (2004), AON Risk Services

Mike Devore (2005)  
Dale Romme (2005)  
Craig Remsburg (2005)

We look forward to seeing you at the business meeting on May 20. The Standards Forum will follow the meeting.

### Committee Members Needed

The IFPS is looking for members interested in representing the section on technical committees. Currently, 27 section members serve as IFPS representatives on 25 technical committees covering topics ranging from agricultural dusts to water-spray fixed systems.

If you're interested, fill out a technical committee application and send it to Guy Colonna at NFPA. You can find the application form at [www.nfpa.org/Codes/TechnicalCommittees.asp](http://www.nfpa.org/Codes/TechnicalCommittees.asp).

### IFPS Constitution Revised

The NFPA Board of Directors approved the following changes to the IFPS Constitution. They were approved during the March meeting of the NFPA Board of Directors.

Revise the membership definitions and provisions of Article IV and V as follows:

#### ARTICLE IV: MEMBERSHIP

~~4.1 There shall be two grades of membership. These shall be Member and Affiliate Member.~~

4.21 A Member shall be any employee of an industrial property or properties, institutional property, commercial property, or similar entity who, on a full-time or part-time basis:

(a) is actively engaged in and directly responsible for the formulation of policies and procedures designed to provide fire protection for one or more plants (e.g., Director of Security, Safety Director, Director of Loss Prevention, Insurance Manager), or

(b) is directly responsible for a plant fire protection program, (e.g., Plant Manager, Plant Engineer, Safety Engineer) or

(c) is directly responsible for the administration and implementation of fire protection policies and programs within a plant or plants (e.g., Plant Fire Chief, Plant Fire Protection Officer, Safety Supervisor).

4.32 An ~~Affiliate~~ Member shall also be anyone, ~~not included in the definition of Member~~ indirectly involved in the activities described in 4.1, who can demonstrate an interest in industrial fire programs (e.g., Insurance Engineers, Fire Service Officers).

~~1.e.g., Director of Security, Safety Director, Director of Loss Prevention, Insurance Manager.~~

~~2.e.g., Plant Manager, Plant Engineer, Safety Engineer.~~

~~3.e.g., Plant Fire Chief, Plant Fire Pro~~



tection Officer, Safety Supervisor, 4e.g., Insurance Engineers, Fire Service Officers.

- 4.4 Membership ~~or Affiliate Membership~~ in the Industrial Fire Protection Section shall be contingent upon Membership in the National Fire Protection Association.
- 4.5 Each Member is entitled to one vote in the affairs of the Section. Section 5.3 hereof shall govern Executive Board voting.
- 4.6 There shall be no special dues or fees for Membership in the Industrial Fire Protection Section other than the regular dues ~~and multiple-Section fees~~ for Membership in the National Fire Protection Association.
- 4.7 Honorary Life Membership in the Section may be conferred upon any person who has made outstanding contributions to the advancement of industrial fire protection. Such membership shall be granted only upon recommendation by

the Executive Board and by a majority of the members present and voting at the Annual Meeting.

#### ARTICLE V: OFFICERS AND EXECUTIVE BOARD

- 5.1 The officers of the Section shall be Chairman; Vice Chairman; Executive Secretary.
- 5.2 The officers of the Section must be members of the Section as described in 4.1.
- 5.3 The Executive Board shall consist of the officers, the immediate past Chairman, if available, six Member Directors as described in 4.1, and three Member Directors as described in 4.2. All members of the Executive Board may vote in the Executive Board proceedings.
- 5.4 Officers shall serve for a term of one year or until their successors are elected. They shall not serve for more than two consecutive terms in any one elective office,

except that the Executive Secretary may serve indefinitely.

- 5.5 The Executive Secretary shall be a member of the staff of the National Fire Protection Association whose service is authorized by the President of the Association and who serves the Section without voting privileges.
- 5.6 At least two Members (4.1) and one Member (4.2) shall be elected annually to serve as Directors for a term of three years.

Creating a single member category allows new members to join NFPA and IFPS on the Web without a review of member and affiliate criteria. The IFPS Board recommended the change since the two-tier membership only applies to the Board of Directors.

**HOW TO REACH US:** Guy Colonna, Executive Secretary, NFPA, +1-617-984-7435, [gcolonna@nfpa.org](mailto:gcolonna@nfpa.org)

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## International Fire Marshals Association

**WEB SITE:** <http://www.nfpa.org/ifma>

**SECTION CHAIR:** Ron Farr, Kalamazoo Township Fire Department, Kalamazoo Township, Michigan

### HOT ISSUES

#### IFMA Nominating Committee Report

The section Nominating Committee submitted its report to the Executive Secretary in November, and the IFMA membership will act on it at IFMA's business meeting during the WSCE in May:

**President:** John Bender

**First Vice-President:** Scott Adams

**Second Vice-President:** Jon Nisja

**Secretary:** Jimmy Hill

**Director:** Don Goff (expires 2005)

**Director:** Bonnie Howe (expires 2005)

Anyone interested in attending or sponsoring a program should contact Executive Secretary Steven F. Sawyer at 617-984-7423 or [ssawyer@nfpa.org](mailto:ssawyer@nfpa.org). Check the IFMA website for complete details.

### Congratulations Are in Order

Congratulations to Scott Adams and the fire marshals of Park City, Utah, who received the Western Fire Chiefs Association's Robert W. Gain Award.

### Professional Development

In 2003, the IFMA Fire Protection Institute is offering two training programs at various locations around the United States:

March 24–27, 2003, "Management Institute for Fire Marshals," Chelan, Washington

March 24–27, 2003, "Principles of Fire Protection Engineering," Las Vegas, Nevada

April 29–30, 2003, "Management Institute for Fire Marshals," Auburn Hills, Michigan

September 29–October 2, 2003, "Principles of Fire Protection Engineering," Baltimore, Maryland

### Our 100th Anniversary Is Coming Up!

IFMA will turn 100 in 2006. If you have any ideas how to celebrate the occasion, contact Committee Chair John Robison at [firemarshal@insurance.state.al.us](mailto:firemarshal@insurance.state.al.us).

**HOW TO REACH US:** Steven Sawyer, Executive Secretary, +1-617-984-7423, [ssawyer@nfpa.org](mailto:ssawyer@nfpa.org)

## Latin American

**WEB SITE:** <http://www.nfpa.org/latinamerican>

**SECTION CHAIR:** Eduardo Abé, Tecin Rosenbauer S. A., Buenos Aires, Argentina

### HOT ISSUES

#### NFPA 59A Adopted in Mexico

Mexico's Energy Regulation Committee (CRE) has adopted as a Mexican norm the 2001 edition of NFPA 59A, *Production, Storage, and Handling of Liquefied Natural Gas*. Antonio Macias, NFPA Director for Mexico, is currently working with Guillermo Rodriguez y Rodriguez, CRE's Director and Legal Counsel, to formalize legal adoption of the norm, published in September 2002.

#### New NFPA Chapter in Dominican Republic

In October 2002, Dominican members of NFPA held their fourth meeting at the Segna Insurance Company in Santo Domingo, Dominican Republic, to discuss forming NFPA's newest

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chapter. In attendance were Juan Carlos Guilbe of Fire Tech, Christine Herridge of the Dominican Association of Disaster Mitigation, Evelio Martinez from Segna, Caonabo Javier of CJP Ingenieria, Sully Rojas of the Dominican Popular Bank, Menioli Alvarez from the Leon Jimenez Group, Jose Almonte of Codetel, and Omar Gonzalez of IFSC Caribbean. Chapter members hope to have their first official meeting no later than April.

#### Board Elections

The fourth election for general director and executive committee of the Latin American Section Board will be held during the section's business meeting on July 23 at 12:00 p.m. at the Miami Convention Center in Miami Beach, Florida. Nominations will be published in the first quarter issue of *Journal Latinoamericano*. For more information, please contact Olga Caledonia, ocaledonia@nfpa.org

**HOW TO REACH US:** Olga Caledonia, Executive Secretary, +1-617-984-7231, ocaledonia@nfpa.org

## Lodging Industry

**WEB SITE:** <http://www.nfpa.org/lodging>  
**SECTION CHAIR:** Thomas Daly, Hilton Hotel Corporation, Beverly Hills, California

#### HOT ISSUES

##### Executive Committee Seeks Nominees

The Lodging Industry Section is seeking members to fill vacancies on its Executive Committee, which oversees the section's affairs, organizes educational sessions for the World Safety Conference and Exposition™ and Fall Education Conference, and provides content for the "Section News" in *NFPA Journal*. For additional information, go to [www.nfpa.org/lodging](http://www.nfpa.org/lodging) or e-mail [lodging@nfpa.org](mailto:lodging@nfpa.org).

**HOW TO REACH US:** Greg Harrington, Executive Secretary, +1-617-984-7471, gharrington@nfpa.org

## Metropolitan Fire Chiefs

**WEB SITE:** <http://www.nfpa.org/metro>  
**SECTION CHAIR:** Mario Trevino, Chief, San Francisco, California

#### HOT ISSUES

##### Executive Board Meets in Atlanta

On November 17, the Metropolitan Fire Chiefs Section held its annual business meeting in Atlanta. Chair Mario Trevino kicked off the session with the "Chair's Report," addressing the strategic planning meeting in Colorado Springs and the Fallen Firefighters' Memorial Service held in Washington, D.C. He also discussed emergency responder funding; wireless E-911; and the memorandum of understanding (MOU) the section recently signed with United States Fire Administration (USFA).

Chief Smith and Secretary Wes Shoemaker, who are planning the program for the Metro Annual Conference in Calgary, Alberta, from June 28 to July 3, reported on what promises to be an outstanding event. Eligible chiefs are invited to attend.

Recruiting new section members was also discussed. Chief Kelvin Cochran and Chief Shoemaker are contacting all eligible chiefs, especially those outside Canada and the United States. Membership in the Metro Section is limited to members of the IAFC and the NFPA who are fire chiefs of cities or jurisdictions with a minimum staffing strength of 400 fully paid career firefighters. We encourage eligible chiefs interested in joining the section to read the membership criteria posted on the Metro Web site or contact the section's executive secretary.

Immediate Past Chair Tim Fuller reported on his and Chief Bill McCammon's work over the past year with the USFA on criteria for incident management teams. This project supports the Metro/USFA MOU.

Treasurer Rebecca Denlinger reported on the section's revenue and expenditures. Chief Denlinger reported that the section is financially sound.

Executive Secretary Russ Sanders presented, for approval, the final version of the new Metro *Policy Manual*. The Executive Committee approved it, and it

is posted on the Metro Web site. Russ also gave an update on the *Comprehensive Consensus Codes™ (C<sup>3</sup>)* set and the recent restructuring at NFPA. He reported that NFPA is on sound financial footing and positioned to achieve its mission.

Senior Board Member Neil Svetanics updated the section on the new Metro blazer and pocket crest. Each regular and senior member of the section will receive a complimentary pocket crest, and information on ordering the jacket will soon be posted on the Web site.

Cathy Stashak of the Society of Fire Protection Engineers (SFPE) invited the section to join SFPE in a venture aimed at sharing information to increase firefighter safety. The Executive Committee agreed to support this endeavor, and additional information will be forthcoming.

To see the minutes from this meeting, membership criteria, section bylaws and more, go to <http://www.nfpa.org/metro>.

**HOW TO REACH US:** Russ Sanders, Executive Secretary, +1-502-894-0411, [rsanders@nfpa.org](mailto:rsanders@nfpa.org)

## Rail Transportation Systems

**WEB SITE:** <http://www.nfpa.org/rail>  
**SECTION CHAIR:** James Gourley, Fire Protection Engineer, Glenside, Pennsylvania

#### HOT ISSUES

##### Focus on Rail Security to Continue

Building on the success of the Rail Fire Safety and Security Symposium at the Fall Education Conference in Atlanta, the Rail Transportation Systems Section will continue to focus on this issue by hosting a three-hour education session at the WSCE in Dallas. The session, titled "Homeland Security and Rail Systems," will explore the impact of federal homeland security legislation on railroads and the way railroads address security and safety issues along their lines. The section will also hold a brief business meeting and an Executive Board meeting during the conference. For information, visit [www.nfpa.org/rail](http://www.nfpa.org/rail).

**HOW TO REACH US:** Jim Lake, Executive Secretary, +1-617-984-7470, [jlake@nfpa.org](mailto:jlake@nfpa.org)

## Research

**WEB SITE:** <http://www.nfpa.org/researchsection>

**SECTION CHAIR:** Samuel Dannaway, Dannaway and Associates, Pearl Harbor, Hawaii

### HOT ISSUES

#### Fall Education Presentations on Web

Two presentations given at the 2002 Fall Education Conference in Atlanta are posted in full at [www.nfpa.org/researchsection](http://www.nfpa.org/researchsection).

The first, "Initial Model for Fires in the World Trade Center Towers," discusses models used to estimate the behavior of the fires in the Twin Towers on September 11, 2001. The authors include Ronald G. Rehm, William M. Pitts, Howard R. Baum, David D. Evans, Kuldeep Prasad, Kevin B. McGrattan, and Glenn P. Forney, all of the Building and Fire Research Laboratory at the National Institute of Standards and Technology (NIST).

In the second presentation, "Protection of Firefighters under the Building Codes," NIST's Richard W. Bukowski, P.E., FSFPE, addresses the issues involved in firefighter safety under building codes in the United States and elsewhere.

**HOW TO REACH US:** John Hall, Executive Secretary, +1-617-984-7460, [jhall@nfpa.org](mailto:jhall@nfpa.org)

## Wildland Fire Management

**WEB SITE:** <http://www.nfpa.org/wildland>

**SECTION CHAIR:** Bill Terry, USDA Forest Service, Washington, D.C.

### HOT ISSUES

#### Congratulations, Firewise Team!

by JIM SMALLEY

At its conference in New Orleans, Louisiana, on January 15, the National Fire Plan bestowed the *Excellence in Community Assistance* award on the Firewise Team, recognizing it for its Firewise Communities efforts over the last two years. Michele Steinberg, Firewise Communities support manager, accepted the award, which acknowledges the Firewise Communities workshops, technical assistance and outreach, and the Firewise Communities/USA Recognition Program.

Bill Webb, director of the Congressional Fire Services Institute in Washington, D.C., submitted the nomination late last year. In it, he stated that "the National Fire Plan (NFP) says we all have a common goal: to live more wisely with fire. In my view, any

program or group of people that can help articulate that goal, that can bring new stakeholders and methods for cooperation (and action) to the matter of severe wildland/urban interface fire in America, is worthy of recognition. Accordingly, I nominate the National Firewise Team...for its consistently outstanding work in community assistance."

For a description of the award and the nomination submitted by Bill Webb, visit [www.nfpa.org/wildland](http://www.nfpa.org/wildland).

#### Board Discusses Awards Program

During the Fall Education Conference last November in Atlanta, the section's Executive Board discussed instituting a national awards program to honor those who achieved notable results in wildland fire protection during the previous year. The Board will propose an award structure, review process, and other pertinent information for review in May at the WSCE in Dallas. All members are encouraged to attend. Additional news will be forthcoming in *Wildfire News and Notes*.

**HOW TO REACH US:** Jim Smalley, Executive Secretary, +1-617-984-7483, [jsmalley@nfpa.org](mailto:jsmalley@nfpa.org)



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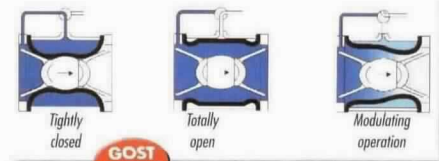


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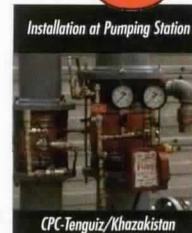
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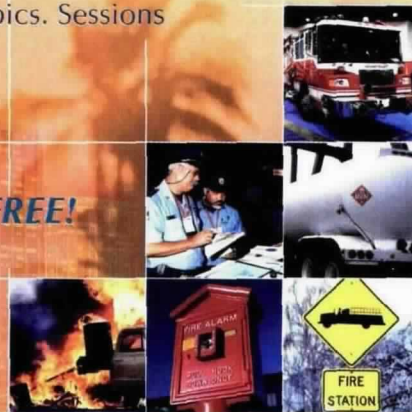
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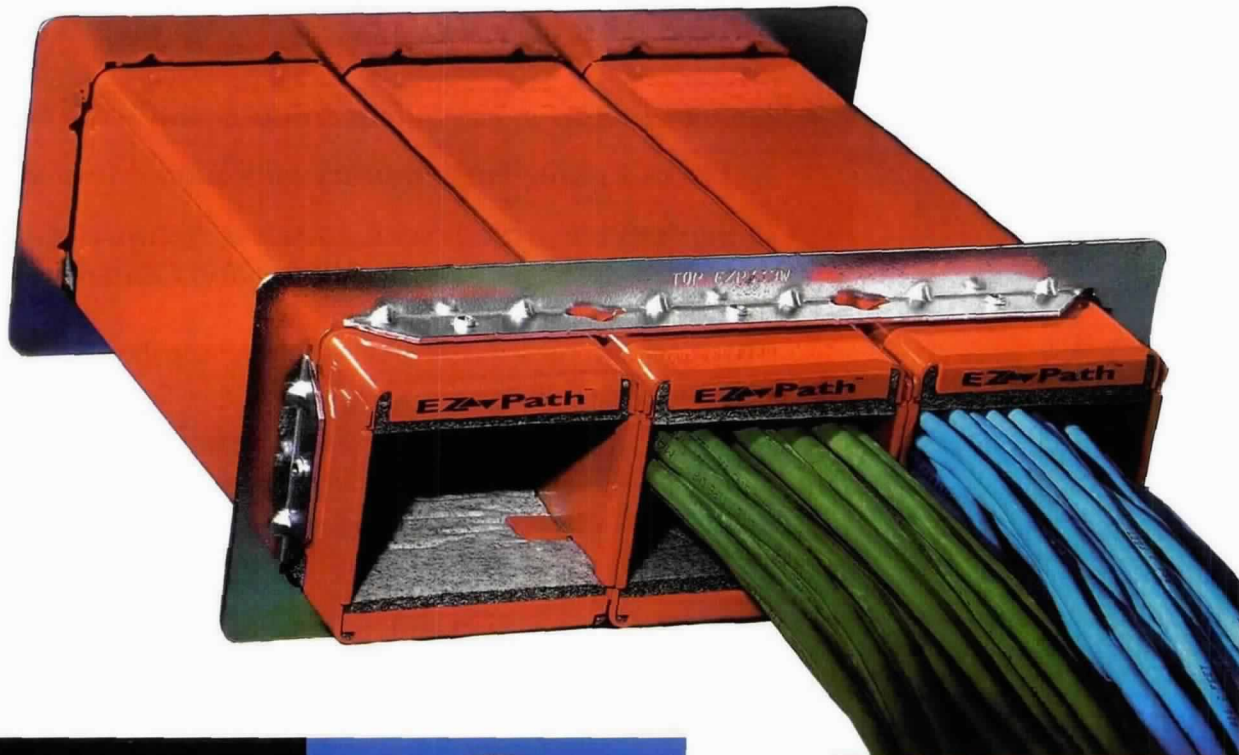
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## SUPPRESSION ELECTRONICS

PVA Corporation manufactures a stand-alone suppression device that goes directly on the ground line of fire alarm panels and security systems, making them impervious to ground transients. Ground transients are an increasingly common cause of false alarms and system malfunctions because they have a detrimental effect on DC logic systems.  
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Circle Reader Service Card No. 104

### FIRE PUMP

Advanced Fire Technology, Inc. has received a UL listing for a packaged-system, limited-service fire pump, controller, and pumping system for use in NFPA applications. For more information, go to [www.advanced-firetechnology.com](http://www.advanced-firetechnology.com).

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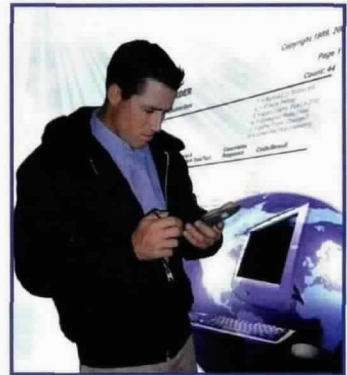
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 April 28-May 2 • Farmington, Connecticut  
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## NFPA's Automatic Sprinkler Systems Seminar

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 March 17-20 • Atlantic City, New Jersey  
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 Stay current with the latest industry developments and practices so you can avoid costly mistakes that could compromise system readiness and effectiveness.

## NFPA 72®, National Fire Alarm Code®, Seminar

March 5-7 • Irvine, California  
 March 12-14 • Ft. Lauderdale, Florida  
 March 19-21 • Atlantic City, New Jersey  
 March 26-28 • Houston, Texas  
 April 9-11 • Nashville, Tennessee  
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March 31-April 4 • Las Vegas, Nevada  
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>> BUILDING TO CODE from page 28

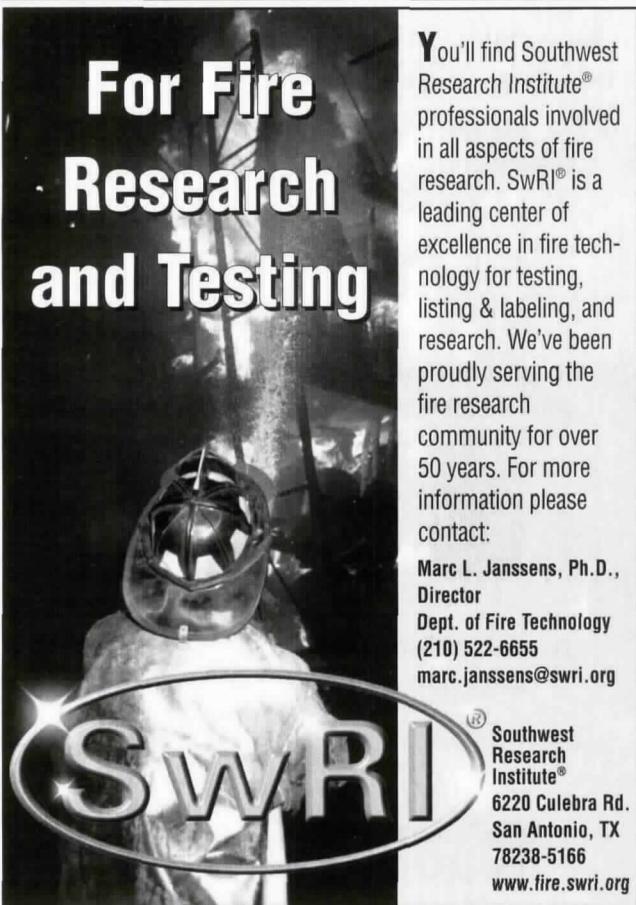
which typically extends from the foundation through the roof and is designed to remain stable and standing even if the structures on either side of it collapse. Firewalls must have a fire-resistance rating of 2 hours or more. The advantage of firewalls is that the parts of the building they separate are considered separate buildings, thus allowing the overall structure to exceed the maximum allowable area specified in Table 7.4.1. buildings. ✦

JERRY WOOLDRIDGE is chair of the technical correlating committee for NFPA 5000.

>> HEADS UP from page 30

not be expected to activate the system in a factory or shopping mall unless the fire spreads to adjacent fuels. Proper training in the use of the NFIRS 5.0 data collection system will be needed to obtain valid statistics that can support the use of a responsible balance between active and passive protection.

RUSSELL P. FLEMING is executive vice-president of the National Fire Sprinkler Association. ✦



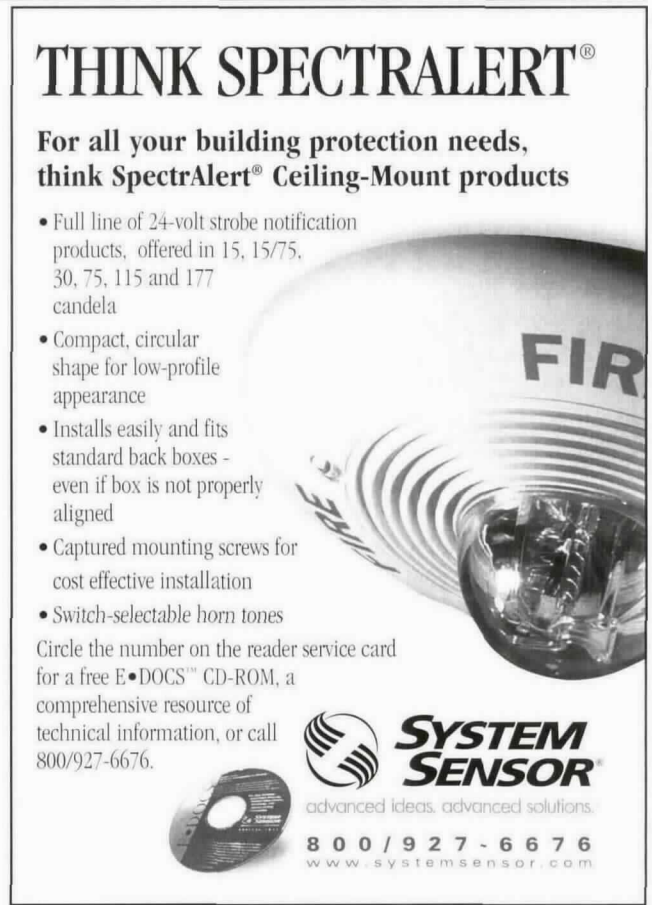
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>> BELTWAY from page 38

seemed to indicate that lawsuits weren't bottling up many projects. But Barry T. Hill, director of natural resources and environmental affairs at the GAO, sent a follow-up letter to McNinn last July acknowledging that the GAO hadn't looked at lawsuits and appeals filed against any of the 1,671 projects before 2001. Hill also admitted that an undetermined number of the projects weren't subject to administrative appeal.

Whatever the statistics, even Democrats agree that process reforms of some sort are needed. Sen. Jeff Bingaman, D-N.M., last year's chairman of the Senate Energy and Natural Resources Committee, said on the Senate floor last September that, "beyond funding constraints, some allege that administrative appeals and lawsuits limit our ability to reduce fire risk across the country. I am willing to provide new legal authorities and exemptions from administrative appeals to address this concern."

The legislation McNinn will introduce in 2003—and which sympathetic senators in the now Republican-controlled Senate will back—will undoubtedly look a lot like last year's H.R. 5319. It will relieve the Forest Service and the BLM of considering alternatives to fuel-reduction projects, as the National Environmental Policy Act otherwise requires, primarily in wildland/urban interface areas. It will also limit the time the Forest Service and the BLM can take on administrative appeals and set deadlines for federal courts to hear appeals of Forest Service decisions.

Even environmental groups such as the Wilderness Society are willing to countenance some regulatory changes. But Mike Francis, director of National Forest Programs for the society, thinks any legislation should focus not on the large wildland/urban interface but on fire protection efforts in a half-mile-wide "community protection zone" around rural communities. ♣

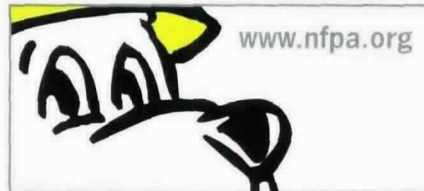
**STEPHEN BARLAS** is a freelance writer based in Washington, D.C.

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# LOOKINGBACK

The Great Peshtigo Fire, Peshtigo, Wisconsin, 1871



IMAGE: CORBIS

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