

## LESSONS LEARNED

Realistic fire-fighter training is essential for ensuring safe operations at true emergencies. Realistic training remains inherently hazardous, though policies and safety procedures have provided for a much greater degree of safety over the past twenty years. Because fire suppression operations are also inherently dangerous, the fire service should train fire-fighters in as close to actual conditions as possible, while protecting them in the process.

The challenge for fire-fighters to push themselves to the boundaries of their capabilities is necessary for long-term fire-fighter survival. The following lessons should be considered as part of that delicate balance:

### **1. Failure to follow established guidelines in training can lead to tragic outcomes.**

Many of the injuries and fatalities over the past decade have been the result of failure to follow currently accepted procedures and standards.

### **2. Fire service instructors should ensure that training standards and procedures be followed closely, especially when challenging tasks are assigned to recruits.**

To prevent injuries, instructors must know their material well, maintain a high ratio of instructors to students and be vigilant about ensuring strict adherence to safety procedures. Instructors should familiarize themselves with the backgrounds and experience of their students, and care should be taken to avoid situations for which the students are not yet prepared.

### **3. Burn buildings and other training technologies cannot substitute for the experience gained in "real" structure fires and live fire evolutions.**

Since fire behaviour and fire attack methods can vary between a burn building and a "real" structure, fire-fighters need to practice in both. Important skills, such as overhaul, cannot be easily replicated in burn buildings. It is increasingly important that fire-fighters receive training in fire behaviour and extinguishment methods for different types of building construction.

### **4. Modern SCBA and protective ensembles provide increased protection levels that require greater training and acquired skills. The recognition of life-threatening fire conditions may be less obvious as a result of the improved protective clothing and equipment.**

One reported concern is that fire-fighters are now so fully encapsulated that they cannot feel the initial danger signs of rapid heat build-up. They are more likely to "go too deep" into a fire building, past the point when they can safely exit, thus negating the advantages provided by the gear. This concern has existed for more than a decade, and will likely continue. It underlines the importance of training fire-fighters to recognize the visual and physical clues to impending danger, such as reading changing smoke conditions and anticipating fire behaviour in different types of building construction.

### **5. Another concern is the number of fire-fighter fatalities related to physical condition. Cardiovascular failure continues to kill and disable fire-fighters while they are involved in training.**

Field experience with heart/cardiovascular-related events mirrors the record of training deaths due to heart attack and stroke. To reduce the amount of such fatalities, departments should consider stronger physical screening programs and long-term health and wellness programs. During training, a fire-fighter's physical stress-level should be monitored continuously, Adoption of, and compliance with, physical fitness standards should be closely monitored, and vigorously enforced and EMS should be readily available.

## **CONCLUSION**

The fire service is faced with a challenge. Improvements in public fire education, prevention, detection, and building construction have resulted in fewer fires and reduced the amount of damage, both in terms of lives and dollars, inflicted by fire. At the same time, however, this trend has reduced the amount of on-the-job training experience available to fire-fighters and officers.

Training remains the key in developing safe and successful emergency responders. New technologies, which have increased the ability to push trainees to the "edge of the envelope," come with their own inherent flaws, as seen in several examples presented in this report. The adoption of training standards, implementation of and adherence to safety procedures, and proper supervision are the keys to preventing training injuries.

The need for safe fire-fighter training must be balanced with sufficient challenge to prepare fire-fighters for the unpredictable nature of the fireground. Training must not be so controlled as to give fire-fighters a false sense of security, nor can it disregard established safety procedures for the sake of increased realism. To maintain an effective cadre of fire-fighters and officers, the fire service must find new and dynamic ways to train personnel to act in a safe, decisive manner that best supports the fire service's mission to protect lives, property, and the environment.

Washington, DC - A technical special report on the risks of fire fighting training and ways to reduce deaths and injuries is being released by the Department of Homeland Security's Federal Emergency Management Agency (FEMA) today. The special report underscores the inherent danger of such training but reiterates the importance of experience gained in real, rather than closely controlled training fires.

"It's important that fire departments train fire-fighters in as close to actual conditions as possible while also protecting them in the process," said Michael D. Brown, Homeland Security Under Secretary for emergency preparedness and response. "This special report highlights how this challenge can be met by the nation's fire service educators and trainers."

The review, compiled by the U.S. Fire Administration (USFA), also highlights the importance of following currently accepted procedures and standards to avoid training deaths and injuries and the need for instructors to avoid situations for which the students are not yet prepared.

The challenge is very real. Since 1987, reported training-related injuries have increased by nearly 21 percent. In 2001 alone, almost 7,000 training-related injuries were reported. That year, a fire-fighter died and two were injured while participating in a live burn training situation.

At the same time, live fire training buildings and simulators fed by propane or natural gas have many built-in safety features but may not provide the same quality of realism as live fire training in acquired structures. The training buildings, for example, fail to teach students to react to the diverse conditions encountered in real fire operations.

In addition, the need to provide in training in situations other than fires, such as hazardous material incidents, increases the danger to participants. In 1997, for example, a member of a unit training to respond to a chemical incident was overcome by a nerve agent and needed to be administered an antidote to stop the seizures.

"Safe and effective - but realistic - fire-fighter training is vital to meet our mission of preserving life and property," said US Fire Administrator R. David Paulison. "This special report reviews training issues, tragic mistakes of the past and determines ways fire-related training can be safer but effective."

Other lessons learned cited in the special report include:

- It is increasingly important that fire-fighters receive training in fire behaviour and extinguishment methods for different types of buildings;
- Modern protective equipment may make life-threatening fire conditions less obvious and fire-fighters must be trained to recognize the visual and physical clues to impending danger;
- During training, a fire-fighter's physical stress level should be monitored continuously and departments should consider stronger physical screening programs and long-term health and wellness programs to reduce training-related heart attacks and strokes.

USFA develops technical reports on selected major incidents, usually involving multiple deaths or a large loss of property. USFA also prepares periodic special reports to discuss events, drills or new technologies or tactics of interest to the fire service. The focus is on "lessons learned" or new knowledge that underscores ongoing issues in fire service. These reports provide detailed information on the nature of the fire problem in this country for policymakers who decide resource allocations, and within the fire service to improve codes and code enforcement, training, public fire education and building technology. This special report was based on meetings, informal interviews and a study of a wide array of fire training literature.

A copy of the full report can be found at:

[www.usfa.fema.gov/applications/publications/tr100.shtm](http://www.usfa.fema.gov/applications/publications/tr100.shtm)

On March 1, 2003, FEMA became part of the U.S. Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages Citizen Corps, the National Flood Insurance Program and the U.S. Fire Administration.