
CENSUS OF FATAL OCCUPATIONAL INJURIES

Prevention of Occupational Fatalities Among Firefighters



Firefighting is a perilous activity. Avoiding injuries and fatalities requires extensive training of firefighters prior to a fire and the incident commander's close observation during the fire. Because the working environment during emergencies is hostile and unpredictable, firefighters are subject to a higher rate of fatal injuries than the rest of the work population. Between 1992 and 1998, there were 12 fatal accidents to firefighters in Illinois, according to data from the Illinois Department of Public Health's Occupational Disease Registry (ODR). Eight of these fatalities occurred to professional firefighters and four to volunteer firefighters. Case reviews conducted by ODR indicated that, if firefighters had been made aware of the surroundings and changing situations during a fire, several of these fatalities would have been preventable.

Conditions change rapidly during a fire. A small white smoke fire that is observed when the firefighters first arrive can become a roaring inferno in a few minutes. When this occurs, the firefighter must be aware of the surrounding conditions and move rapidly to prevent dangerous situations from developing. Attention to these changing conditions is therefore a must.

Training is important and should be conducted at every opportunity. However, two occupational fatalities occurred during training sessions. In each case, the trainer was the person who was fatally injured. To prevent these fatalities, trainers should know their subject well, test the apparatus, and use safeguards to prevent injury during demonstrations. Training sessions should be similar to actual fire scene

Chiefs, captains and lieutenants have to know where their individual firefighters are at all times to insure that all are accounted for. What is safe one minute may not be the next. Observers from a distance may see some things that a firefighter up close may not see. Supervisors must be able to sound alarms quickly, and the firefighters must recognize those alarms for their correct purpose. For example, there is a difference between an emergency

situations, but the scene must be controlled. If a trainer is in a hazardous position during the training session, safeguards, such as fall protection devices or rescue personnel, should be available and ready to use.

When at an actual fire, changing conditions may make it difficult for firefighters to see all their surroundings. Sometimes firefighters are so intent on getting the fire extinguished that they may not be able to see walls bowing or roofs sagging prior to their collapse. Incident commanders must be aware of these conditions and withdraw firefighters from hazardous situations. A case in point is illustrated in the following excerpt appearing in the National Institute for Occupational Safety and Health's (NIOSH) Alert bulletin (publication number 99-146).

A firefighter died when a wall collapsed on him during a recycled paper filled warehouse fire. Four fire departments responded to the fire. The warehouse was built in the late 1800's and consisted of a brick masonry frame with a heavy wood frame trusses. The first arriving chief saw smoke issuing from below the eaves at the rear of the building. He decided not to enter the building but to "surround and drown" the fire. When the third department arrived, they were ordered to attack the exterior from the north side of the structure. One of the firefighters approached the structure to open the large, barn-like doors to enable the firefighters to attack from the exterior. As the firefighter was returning to help man the hose, the barn doors closed because of their self-closing mechanisms. The firefighter was returning to the doors to prop them open when the wall collapsed upon him without warning. He died as the result of multiple crushing injuries.

evacuation, which requires firefighters to drop equipment and leave, and the incident commander to conduct a roll call, and a withdrawal, which firefighters must know the difference in the signals.

National Institute of Occupational Safety and Health recommends that fire departments take the following steps to minimize firefighter-related fatal injury risk:

- Ensure that the incident commander conducts an

initial size-up and risk assessment at the scene before beginning interior firefighting

- Ensure that the incident commander always maintains close accountability for all personnel at the fire scene, both by location and function
- Ensure that at least four firefighters are on the scene before entering a structure and beginning interior firefighting at a structural fire (two firefighters inside and two outside the structure)
- Establish rapid intervention crews and make sure they are positioned to respond immediately to emergencies
- Equip firefighters who enter hazardous areas to maintain two-way communications with the incident commander
- Ensure that standard operating procedures and equipment are adequate and sufficient to support

radio traffic at multiple-responder fire scenes

- Provide all firefighters with personal alert safety system (PASS) devices and make sure that they wear and activate them when they are involved in firefighting, rescue, or other hazardous duties
- Conduct pre-fire planning and inspections that cover all building materials and components of a structure
- Transmit an audible tone or alert immediately when conditions become unsafe for firefighters
- Establish a collapse zone around buildings with parapet walls

Additional information concerning firefighter protection is available on the Internet at www.cdc.gov/niosh.

Source: Illinois Department of Public Health, Division of Epidemiologic Studies, on behalf of the U.S. Bureau of Labor Statistics, in cooperation with state and federal agencies, Census of Fatal Occupational Injuries 1992 through 1998.