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FIRE FIGHTER SAFETY AND THE CHICAGO FIRE DEPARTMENT

By Richard Schulte

On the morning of December 22, 2010, the Chicago Fire Department lost two fire fighters to a nuisance fire in an abandoned building when the roof of the one story building collapsed. At the time that the roof collapsed, there were four fire fighters in the building and fire fighters on the roof. In addition to the two fatalities, another 17 fire fighters were injured.

According to news accounts of the fire, the Chicago Building Department had cited the building owner for numerous building code violations. One of the code violations which building inspectors had identified was the deteriorating structural capability of the truss supported roof deck of the building.

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Given the recommendations for fire fighting procedures contained in NIOSH Alerts issued by the National Institute for Occupational Safety and Health, NIOSH 2005-132, ***Preventing Injuries and Deaths of Fire Fighters due to Truss System Failures***, and NIOSH 2010-153, ***Preventing Deaths and Injuries of Fire Fighters using Risk Management Principles at Structure Fires***, and the fact that building inspectors had identified that the roof construction was in need of structural repair, it seems reasonable to ask why fire fighters entered the building and were on the roof.

The official response to that question, although the question hasn't been asked as of yet, was that there could be homeless people in the building, but, at least so far, no bodies of any civilian victims of the fire have been found. It seems more than likely that the fire was accidentally ignited by homeless people using the building for shelter from the freezing temperatures in Chicago, but the people in the building escaped from the building prior to the arrival of the fire department.

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Certainly, it would seem that this fire should call into question the Chicago Fire Department's standard operating procedures addressing fires in abandoned buildings. Many fire departments throughout the United States, including FDNY and the Flint (Michigan) Fire Department, have now adopted operations policies specifically for vacant and abandoned buildings. These procedures address the issue of fire fighter safety and the need for extreme caution due to the fact that the structural systems in many abandoned buildings have deteriorated. It's no secret that the fire service considers vacant and abandoned buildings to be fire fighter "death traps".

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With the background above, let's take a look at the report on the "2007 National Firefighter Life Safety Summit" held in Novato, California on March 3 and 4, 2007. The following are excerpts from the report:

"*On March 3-4, 2007, fire service leadership gathered for the 2007 National Firefighter Life Safety Summit to continue to develop solutions to the continuing problem of firefighter line-of-duty deaths, and by extension, firefighter line-of-duty injuries.*"

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"*These are the Everyone Goes Home Program and the 16 Firefighter Life Safety Initiatives, created from the first National Firefighter Life Safety Summit in 2004, and six subsequent minisummits held between 2004-2007 (reports from the first National Summit and the mini-summits are available at*[:]

www.everyonegoeshome.com."

"*The Summit took place at the Novato, California, headquarters of Fireman's Fund Insurance Company, the primary private sponsor of the NFFF's Everyone Goes Home program and the Firefighter Life Safety Initiatives program.*"

"*The 2004 Summit marked a significant milestone: It was the first time that a major gathering united all segments of the fire service behind the common goal of reducing firefighter deaths.*"

"*The 16 Firefighter Life Safety Initiatives, created by fire service leadership at the first FLSI Summit, are recognized quite widely as the quintessential blueprint for reducing firefighter line-of-duty deaths and injuries. They converge into an unprecedented strategy for reducing LODDs. However, a blueprint is just that.*"

"*The cultural issues are much more complex and require people to change in order to achieve the desired outcomes.*"

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"*As the reports were presented to the full Summit, it became clear that, in many ways, the recommendations which dealt with "things" were much easier to define and describe than those which ask people to change.*"

"***# 1 Define and advocate the need for a cultural change within the fire service relating to safety; incorporating leadership, management, supervision, accountability and personal responsibility.***"

"*The existing cultural orientation which often encourages or accepts unsafe attitudes and behaviors has been identified as the greatest challenge that must be overcome in order to make significant improvements in firefighter health and safety.*"

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"*A culture that takes pride in confronting potential death with raw courage has difficulty adapting to health and safety concerns as organizational priorities. While the fire service as a whole has recognized that too many lives are lost, too many firefighters are injured and too many die from resulting illnesses, the individual members have difficulty reconciling "be bold and be brave" with "be careful, exercise regularly and eat healthy foods." This is an example of the cultural challenge that must be overcome to reach the goals of the Firefighter Life Safety Initiatives Program.*"

"*The fire department should consciously avoid rewarding unsafe or inappropriate behaviors, such as giving special awards or recognition for heroic acts that violate safety procedures. The status of "hero" should not be applied to an individual who acts recklessly and disregards established safety procedures. Heroism should be recognized when it occurs within the scope of acceptable practices and in situations where the risks are justified and there is no "safe" alternative.*"

"*Actively promote a safety culture within the fire department. . .*"

"*Assign individuals with the appropriate attitudes and skills to the training division to promote and reinforce the desired cultural change. Safety and risk management should a main focus of all training activities from recruit to veterans.*"

"*Challenge the cultural definition of "hero."*"

"*Reward and recognize safe behaviors and practices. Stop rewarding unsafe and inappropriate behaviors.*"

"*Challenge the cultural definition of "hero."*"

"***Accountability implies that there are serious consequences for failure to follow established procedures and apply appropriate risk management principles.***"

"*. . .The hazardous nature of emergency incidents requires a systematic method to keep track of the location, assignment and status of every individual firefighter who is operating in a hazardous area. . .*"

"*The fire service is also concerned with the related issue of personnel accountability during emergency operations. The hazardous nature of emergency incidents requires a systematic method to keep track of the location, assignment and status of every individual firefighter who is operating in a hazardous area. Personnel accountability requires a very structured and disciplined approach to incident management, which is directly related to the overall concept of personal and organizational accountability for the health and safety of every firefighter.*"

"*Adopt and implement a pre-incident survey program to identify the risks and hazards associated with individual structures and occupancies.*"

"# **4. *All firefighters must be empowered to stop unsafe practices.***"

"*At the most fundamental level it calls for all firefighters, at any rank or level within the organization, to simply stop doing things that they recognize as unsafe practices, such as habitually disregarding safety rules and circumventing safety procedures.*"

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"***The Summit participants placed a strong emphasis on ensuring that every individual is both medically and physically "fit for for duty" and limiting or prohibiting the participation of anyone who is unfit****. Many currently active firefighters would not be eligible to participate in emergency operations, if the existing medical and physical fitness standards were fully applied.*"

"***All firefighters must meet the appropriate medical and physical fitness requirements in order to be eligible for duty. . . No exceptions shall be made to medical and fitness requirements.***"

"*The resource issue is directed toward providing the resources that are required to operate safely and effectively at the scene of a fire or other type of emergency incident. This includes the 2-in/2-out policy, the establishment of rapid intervention teams (RITs), the ability to rotate and rehabilitate or replace fatigued crews and the ability to conduct and support effective operations. If the necessary resources are not available, the operational strategy should be limited to those functions that can be performed safety using the resources that are available.*"

"*Many currently active firefighters would not be eligible to participate in emergency operations, if the existing medical and physical fitness standards were fully applied.*"

"*The consistent use of standard operating procedures and guidelines and the application of an incident management system to all emergency situations are fundamental safety requirements.*"

"*Every negative experience should provide lessons, along with an incentive and a motivation to make changes. These negative occurrences must be investigated and analyzed to identify the problems before corrective actions can be implemented.*"

"*The purpose of the NIOSH Fire Fighter Fatality Investigation Program is to obtain information for research and educational purposes.*"

"*Technological advances that increase operational effectiveness also contribute to firefighter safety by reducing exposure to dangerous situations and the risk of over-exertion.*"

"*The cost of adopting new technology should be weighed against the costs associated with a preventable firefighter injury or fatality.*"

"*While public fire and life safety education programs are primarily directed toward increasing public safety, every success on the prevention side is also a positive accomplishment toward reducing the exposure of firefighters to dangerous situations.*"

"*The fire service must stand behind the adoption and enforcement of codes that will provide for safer communities and a safer environment for firefighters. . .*"

"*Fire fighters should support public education programs for both reasons; to better protect their communities and to contribute to their own safety.*"

"**# 15 *Advocacy must be strengthened for the enforcement of codes and the installation of home fire sprinklers.***"

"*The fire service must stand behind the adoption and enforcement of codes that will provide for safer communities and a safer environment for firefighters. We have the technology to build safer communities, if we educate the public and decision makers on the social and economic benefits.*"

Analysis and Commentary

There is a common theme which runs through the excerpts from the report on the Fire-fighter Life Safety Summit held in Novato. That theme is common sense.

Let's try to summarize the above in just a few points:

- There is a need for a "cultural shift" in the fire service-heroics needs to take a "back seat" to safety.
- Personnel involved in fire fighting need to comply with medical and fitness standards.
- Fire protection technology can be used to limit fire fighter's exposure to hazardous fire conditions.

The first point above is essentially a "water-shed" concept.

The first point above is essentially a "water-shed" concept. Fire departments are, after all, involved with public safety. An organization involved with public safety should hold safety as its highest priority. It seems rather hypocritical to preach safety to the public, while at the same time ignoring the safety of fire fighters involved in delivering public safety. Public safety and fire fighter safety should go hand-in-hand.

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The second point seems rather obvious. Statistics collected by the National Fire Protection Association (NFPA) and the U.S. Fire Administration (USFA) tell us that year-after-year between 40 and 50 percent of the fire fighter fatalities which occur are due to cardio-vascular system problems (*i.e.*, heart attacks). Eliminating deaths caused by cardio-vascular system symptoms and disease is rather simple-simply enforce medical standards.

Enforcing medical standards won't eliminate every fire fighter fatality due to cardio-vascular problems because some cardio-vascular problems are hidden, but there is no reason why the vast majority of fatalities due to heart attacks (and strokes) can't be eliminated.

Although the enforcement of medical standards seems to be an obvious method of reducing fatalities among fire fighters, there is much opposition to this in the fire service for obvious reasons. If you can be declared ineligible to work in your profession due to your failure to meet minimum medical standards, it is possible that many in the fire service may at sometime in their careers be "washed out" of the profession due to their health.

If you can be declared ineligible to work in your profession due to your failure to meet minimum medical standards, it is possible that many in the fire service may at sometime in their careers be "washed out" of the profession due to their health.

Fire fighters need to realize that they can't have it both ways. You simply can't complain about fire fighter fatalities and expect something to be done about the problem when 40 to 50 percent of the fatalities are caused by cardio-vascular health issues. The fire service either needs to support the enforcement of minimum health standards in the profession or needs to "pipe down" about the issue of fire fighter fatalities.

In my mind, the ultimate solution to the problem of fire fighter fatalities is the third point above. The technology to practically eliminate both civilian and fire fighter fatalities was developed more than 100 years ago. That technology is sprinkler protection.

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Initially, sprinkler protection was only considered to be a means to protect buildings and contents from fire. Through the efforts of Chester Schirmer, Rolf Jensen, Harold Nelson, Richard Patton and others in the late 1960's and early 1970's, the concept that sprinkler protection could be used to protect building occupants was developed. Shortly after the first tall building in the United States to be protected by a sprinkler system, the Sears Tower, was completed in 1974, the concept that sprinkler protection could be used to reduce or eliminate fire fatalities in 1- and 2-family dwellings was introduced.

In the late 1970's and early 1980's, testing was conducted to verify that sprinklers could indeed be used to protect the occupants of dwellings from fire and to determine the design parameters for such systems. The first sprinkler designed specifically for use in dwellings was listed in the early 1980's.

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Although the technology to essentially eliminate both civilian and fire fighter fatalities in building structure fires was developed nearly 30 years ago, sprinkler protection is still under-utilized in the United States. While the installation of sprinkler protection has been mandatory in high rise buildings since the early 1980's and sprinkler protection is installed in almost all new non-residential buildings of any size, providing sprinkler protection in low-rise apartment buildings and in dwellings has lagged behind. If we had made the installation of sprinkler protection in dwellings mandatory in the 1980's, or even the 1990's, fire would be much less of a problem in 2010.

The last hurdle to providing sprinkler protection in dwellings is cost. In some areas of the country (California), the cost of providing sprinkler protection in single-family home has been reduced to less than $1 per square foot. In the Chicago metropolitan area, over 100 suburban communities surrounding the City of Chicago have adopted ordinances which make the installation of sprinkler protection in new single-family dwellings mandatory, but the City of Chicago has not adopted an ordinance requiring dwelling sprinkler protection. The cost of providing sprinkler protection in a dwelling varies anywhere from $1.50 to $3 per square foot in the suburban Chicago area.

While a cost of $1.50 to $3 per square foot may seem high, it should be noted that the reductions in cost which can be attributed to reductions in fire fighter fatalities and injuries is not factored into this cost. One other reduction in cost which is also not factored into the cost cited above is the reduction in public fire protection costs. It is my opinion that if the number of fire fighters required to provide reasonable public protection can be reduced, the actual net cost of providing sprinkler protection in dwellings is zero. In other words, the benefits of providing almost universal sprinkler protection include not only practically eliminating civilian and fire fighter deaths, but also reducing the number of fire fighters necessary to provide adequate public protection. In today's economy, where lay-offs in both police and fire departments throughout the country are imminent, this latter benefit will perhaps be the most important benefit of all.

To bring this back to a discussion of Chicago and the Chicago Fire Department, the City of Chicago is pretty much bankrupt. Yes, that's right, the City of Chicago is on the brink of bankruptcy. With no money to maintain the size of the Chicago Fire Department at its present strength, how will Chicago maintain the level of fire protection in the city in the near future? The answer to that question is simple-adopting a modern model building code with a requirement to provide sprinkler protection in low-rise apartment buildings and in 1- and 2-family dwellings.

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Fire fighters in Chicago may not like the fact that sprinkler protection will be used as a substitute for some of their jobs, but given the financial position that Mayor Daley and his "crony government" have gotten the city into over the last 20 years, there seems to be little choice. Fortunately, installing sprinkler protection in dwellings is like providing a fire company in every dwelling without the cost of salaries and health care costs of the fire company. Not to worry, however-sprinkler protection still can't respond to medical emergencies, vehicle fires and hazardous materials situations. That means that there will always be a need for fire fighters, just not as many as we have today.

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It may take 20 or 30 years for a sufficient number of residential buildings in Chicago to be provided with sprinkler protection to take the place of a significant number of fire fighters. In the mean time, the Chicago Fire Department will have to wrestle with providing adequate fire protection with the cuts in personnel which will be required due to budget constraints.

Almost universal sprinkler protection is a way to help deal with Chicago's budget mess. And you thought that sprinkler protection only provides fire protection.

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