

Investing in Bailout

The Case for Providing Every Firefighter with Personal Rescue & Escape Equipment

Presented by DEUS Rescue

In January 2005, four FDNY firefighters from Ladder 27 and Rescue 3 were trapped on a fourth floor. The firefighters jumped from windows. One had a rescue rope which he used to help himself and another firefighter. They were seriously injured, and the other two firefighters died as a result of their injuries. In response to this incident, and others like it, the New York Department of Labor enacted a code (Labor Code Rule 800.7, under section 27a of the Labor Law) requiring safety ropes and associated system components for all interior fire personnel.

The New York law is the exception, not the rule. For the vast majority of fire departments in the U.S., providing firefighters with Personal Escape and Rescue Systems (PERS) is still a matter of choice. This leaves fire departments to balance their growing need to reduce expenses with the need to support firefighter safety and rapid intervention. As a result, where it is not a requirement, many fire departments may be tempted to forego supplying their firefighters with PERS, or may look to the lowest cost option. Before you or your department administrators make this critical decision, consider this:

- The need for and benefits of effective PERS can far outweigh the costs, making the purchase of PERS for each firefighter an investment rather than an expense.
- The loss of firefighters' lives, health and productivity represents a significant cost, some of which may be avoidable with effective PERS.



TAKE NOTE

Key firefighter injury and fatality statistics:

- 103 firefighter fatalities in 2008
- 30% of all deaths were due to "caught/trapped"
- 80,100 on-duty firefighter injuries in 2007
- 27.3% of injuries were "fall, slip or jump"
- 20.4% of injuries resulted in lost work time
- 80% of injuries required hospitalization
- Annual cost of injury and prevention: \$7.8 billion
- Lifetime cost of one firefighter injury: \$18,231

- Firefighters need to be confident that when an emergency arises, their equipment is readily available, deployable, and capable of aiding in safe bailout. This confidence is only possible with truly effective PERS.

This white paper outlines the many reasons why fire administrators should invest the time and financial resources to equip all of their interior firefighters with effective PERS.

The Need for Bailout is Real

Today, more and more fire departments and individual firefighters are adopting and carrying personal bailout ropes and equipment. While the numbers of firefighter fatalities has declined over the last 30 years by 59%, the number of structure fires has declined by 54%. The rate of firefighter deaths at structure fires in the late 1990s was roughly the same as that in the late

1970s (Fahy, 2002). Further, the incidence of firefighter fatalities per 100,000 incidents has actually risen (TriData Corporation, 2002).

Despite the improvements in protective clothing and equipment, fire ground procedures and training, a number of factors contribute to the fact that firefighters remain at risk.

The increased availability and interest in PERS for individual firefighters has arisen as a way of addressing these risks. Bailout may be a means of avoiding serious injury or death, and is often the only option for trapped firefighters.

There were 103 on-duty firefighter fatalities in each year, 2007 and in 2008. This reflects a relatively consistent fatality level over the past decade. Of these deaths, 30% were attributable to “caught/trapped” (Fahy, LeBlanc, and Molis, 2009). In 2007, more than 80,000 firefighters were injured in the U.S. (Karter, and Molis, 2008). With approximately 1.1 million firefighters in the U.S., that means more than 1 in every 14 firefighters is injured in a year (Karter, 2008). Of these injuries, 27.3% were attributed to falling, slipping or jumping (Karter, et al, 2008). As the incident in New York illustrates, a portion of these deaths and injuries may have been avoided with bailout using effective PERS.

Jumping without the aid of PERS is simply not a viable option. It may be easy to underestimate the risk of serious injury or even death from falling or jumping. Even a jump from as little as 15 feet, such as a second story window, may be deadly. In fact, the typical trauma patient with injuries sustained in a free-fall has a mean fall height of less than 20 feet (Moore, et al, 2003). Moreover, according to the American College of Surgeons, falls from more than 20 feet have historically been triaged to trauma centers, “but even low-level falls can cause serious head injuries.” (Schermer, 2002.)

Waiting for rescue is not a viable option in many situations either, as there simply is not enough time. In 2002, the Phoenix Fire Department completed more than 200 multiple company drills to evaluate rapid intervention efforts. The results showed

it takes 21 minutes to rescue a downed firefighter using a team of 12 firefighters, of whom 20% will likely get into some trouble themselves (International Association of Fire Chiefs, 2005).

The time to react and a firefighter’s ability to react are both limited in life-threatening situations and harsh conditions. Only when each interior firefighter is assigned his own PERS unit, to be worn and maintained as a critical part of his bunker gear, is there assurance that the equipment will be available when needed, making safe bailout a real option.

The Avoidable Burden on the Department

Firefighter injuries cost departments in real dollars. The annual direct cost of addressing firefighter injury and prevention in the U.S. is estimated at \$7.8 billion. This includes workers compensation payments

and insured medical expenses, lost productivity, administration costs and more. This does NOT include additional cost factors such as labor costs for investigations, data collection, report writing, etc. Moreover, the lifetime cost of injury for a single firefighter is estimated at more than \$18,000 (TriData Corporation, 2004).

There are also personal and administrative costs from firefighter injuries and fatalities. When a firefighter dies or is injured in the line of duty, the rest of the department is affected. Most obviously, that firefighter must be replaced with temporary staffing, or reallocation of department personnel. The morale of the department can also be impacted, especially among the



TAKE NOTE

How injury affects firefighters and their families:

- Lost wages from primary or secondary employment
- Lost potential wages from future employment
- Medical and caregiver expenses
- Insurance premiums and deductibles
- Cost of physical changes to home
- Pain and suffering, physical and emotional

specific company and team. (U.S. Fire Administration, 1998.) These facts should be considered when deciding whether or not to invest in PERS.

The Needs of the Individual Firefighters and Their Families

Behind published fatality statistics are stories of specific events, individual firefighters who made the ultimate sacrifice, and families they left behind. The emotional impact on the family, in terms of pain and suffering is obvious, if not calculable. The lost wages and other financial burdens can be equally overwhelming.

Injuries may not be considered the “ultimate sacrifice”, but can have lasting and dramatic consequences for a firefighter and his family. Of the 80,100 on-duty firefighter injuries in 2007, 80% involved hospitalization, and more than 20% resulted in lost work time (TriData Corporation, 2004). These injuries can be painful, and may have a lasting effect on the firefighter’s lifestyle and that of the family.

Serious injuries that keep a firefighter out of service can also have dramatic financial implications. Financial losses from injury may include:

- Lost wages from primary or secondary employment
- Lost potential wages from future employment
- Medical and caregiver expenses
- Insurance premiums and deductibles
- Costs of physical changes to the home

PERS is as much for the family as it is for the individual firefighter.

The Real Need: Reliable Bailout and Training

In August 2009, one firefighter died and two others were seriously injured when a residential fire in Yonkers, NY, forced

them to jump or fall from a third floor window (USFA Firefighters Memorial Database). The New York Labor Code Rule requiring the use of PERS, in place at the time of this event, did not specify the type of bailout equipment or any particular features of such equipment. This may demonstrate that complying with the law technically may not necessarily mean the firefighters are sufficiently equipped for safe, reliable bailout when the need arises. This is because not all bailout systems are created equal.

To ensure that firefighters are given their best chance of safe bailout, administrators are encouraged to procure personal rescue equipment that meets some minimal specifications for safety, reliability, ease of use and practicality. Further, proper training must be included with the adoption of the equipment, to ensure its proper use in an emergency.

Well-designed equipment, in conjunction with proper training, will address the following needs:

Time constraints – In fires and other emergencies, time is always a factor. PERS must be simple to use and quick to deploy, and firefighters must be well trained in their use.

Stress and duress – In the heat of the moment, firefighters may not have the time or ability to engage technical equipment. Their PERS must be simple enough to deploy under extreme conditions, with built-in safety features to compensate for human error.

Physical limitations – Firefighters who are injured may not



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What to look for in effective PERS:

- Allow hands free exit and descent
- Limits speed to a safe level according to NFPA Standards
- Technology prevents free fall
- Built durable enough for firefighter use
- Small and lightweight enough to carry
- Easy to deploy in full gear
- Can be used for repetitive training
- Includes training and support

be capable of operating bailout equipment, especially if they lose the use of their hands or arms. Effective PERS should function hands free in both “stop” and “go” mode.

Firefighter compliance – Many bailout systems have been criticized for being too heavy and bulky to carry. The PERS must be small and lightweight to ensure more firefighters are willing to carry them at all times.

Safe descent – The physical risks of free-fall have been documented above. Given these risks, PERS must have the technology to limit descent to a safe speed and prevent free fall. Products that meet NFPA certification (1983 [06-ED] “E”) will limit descent speed to a maximum 3 meters per second.

Repetitive training – Proper use of PERS in emergency situations requires that each firefighter is trained. This means the bailout equipment must accommodate affordable, repetitive training.

Careful evaluation of multiple PERS options should be undertaken by any department looking to provide their firefighters with bailout equipment. Cost cannot be the only criteria. Only systems that address these needs should be considered.

Conclusion

Several high profile incidents involving firefighter fatalities, especially the events of 9/11, have given rise to the growing demand for, and availability of, personal bailout and rescue equipment. These events have also led the state of New York to require that its departments provide PERS to all interior firefighters. At the same time, departments in every state are struggling with financial pressures.

Whether or not PERS is a legal requirement in your state, it is a good investment. Much of the emotional, physical and financial costs of firefighter injuries and fatalities may be avoided

with effective bailout equipment. Given the various conditions in which emergency use of bailout equipment may occur, the systems must meet minimal standards of safety and reliability. A full review and evaluation of alternative bailout systems should be completed before the final purchase decision is made. ●

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