

## FIREFIGHTER PERSONAL ESCAPE AND RESCUE SYSTEM

### Grant Application Format and Generic Narrative

#### PROJECT DESCRIPTION AND BUDGET

Our Department has identified an urgent need to provide our members who are classified as interior firefighters with a dependable personal escape and rescue system (PERS).

The need for interior firefighters to carry a PERS is because of four things:

- a) Modern, lightweight construction techniques and synthetic furnishings result in hotter fires that spread quickly. Also, smaller crews result in firefighters becoming separated from their teammates. When interior firefighters get in trouble, they need a fast, safe, easy and effective way to bailout. It is not feasible to wait for help.
- b) Firefighters sometimes need to perform civilian rescues during fires and other emergencies. It is not always feasible to carry a civilian down multiple flights of stairs or to wait for a ladder or special rescue team – fires in lightweight construction move too fast. A firefighter with the right PERS can safely and quickly rescue civilians or injured firefighters without waiting for help.
- c) Bailout equipment is useless if it is not readily available and pre-rigged for instant use. The time to react, and a firefighter's ability to react, are both limited in harsh and life-threatening situations. Further, the equipment must be maintained and in good working condition when placed into action. Only when each interior firefighter is assigned his own PERS, to be worn and maintained as a critical part of his bunker gear, can we be sure the equipment will be available when needed.
- d) *(Paragraph describing the specific local conditions that increase the likelihood of firefighter injury. This may include wind or other weather or climate conditions that enhance the risk and severity of fire. Address aspects of the physical structures in the community that may be inherently more at risk for fire or that raise the potential danger when fires occur, such as building types, construction methods and materials, etc Also address specific buildings such as multi-story schools, hospitals and nursing homes that can create special rescue conditions.)*

In order to meet this identified risk, we are seeking funds to supply every interior firefighter in our department with a PERS. The grant and purchase will bring us into compliance with NFPA and OSHA requirements.

The personal escape and rescue system (PERS) will consist of the following components:

- 1) **Harness with waist belt and leg loops.** Bailout with only a belt (no leg loops) can result in serious internal injuries, and during a head-first emergency bailout it is possible to slip out of a belt without leg loops.
- 2) **Controlled descent device.** The controlled descent device will have these characteristics:
  - a. Hands-free operation both “stop” and “go”
  - b. Speed limited to a safe descent speed to prevent free-fall
  - c. Suitable for both training and firefighting by changing ropes
  - d. Can be used for rapid sequential rescues without re-rigging because rope runs through it in either direction
  - e. Can be used for hauling injured firefighters and for confined space rescue with 2:1 or 4:1 mechanical advantage with minimal change of rigging.

- 3) **Escape rope.** Rope is safer than steel cable because it is not electrically conductive, lighter weight, easier to tie and can be cut in an emergency. The escape rope will meet the NFPA standard for escape ropes and will contain fire-resistant fibers.
- 4) **Emergency anchor.** Firefighters need the ability to anchor and bailout in seconds. The anchors used for climbing or in industrial applications are not suitable for firefighters.
- 5) **Connectors.** Carabiners, lanyards and slings are necessary components of a complete PERS because they connect the parts and make the system versatile so it can be used in a wide variety of escape and rescue situations.
- 6) **Carry/deploy bags.** Our interior firefighters will carry their PERS every time they go inside. These firefighters already carry gear that adds 25% to 50% to their body weight. The carry/deploy system for their PERS must be comfortable, it must not hinder their movement or work, and it must make their PERS instantly accessible in an emergency.
- 7) **Bunker gear retrofit.** To carry the PERS requires a retrofit of current bunker gear. Specifically, loops must be sewn to the pants to hold the harness in place so that it can be put on quickly.
- 8) **Training.** The PERS is technical life-safety equipment that requires qualification training before use.

*(Paragraph that describes the area that the fire department serves: number of residents, number of residential buildings of various heights, number of office buildings of various heights, number of industrial buildings of various heights, number of towers of all sorts classified by height.)*

*(Paragraph that states the total budget for the project and what that budget includes. For example, "The total budget for the project is \$XXX, which will purchase YY PERS for YY interior firefighters. The PERS we have evaluated is from DEUS Rescue. Each firefighter will be supplied with DEUS 3100 controlled descent device, a DEUS quick-connect harness, 50 ft of 7.5 mm DEUS FireBrite rope, a Crosby anchor, two NFPA-rated carabiners, a DEUS connection lanyard, a DEUS hip holster and lumbar rope pack carry/deploy system, modification of bunker pants to attach the PERS, and training for the department's trainers. Once the department's trainers are qualified, they will train and qualify our interior firefighters using the DEUS training program.")*

The New York State Legislature put into effect on 1-Oct-07 an amendment to the New York State Labor Law (section 27a) requiring fire departments to provide safety ropes and controlled descent system components for firefighters to use. This amendment was passed after an incident in which six New York City firefighters jumped from the fourth floor of a burning apartment building in the Bronx. Two firefighters were killed and two were permanently disabled. One firefighter had a personal safety rope that he shared with another firefighter. These two firefighters survived and were able to return to work. As a result of this incident, FDNY now provides firefighters with PERS. Because of the implication of liability, it is likely that other states' legislatures will enact similar requirements. The DEUS Rescue PERS exceeds known and anticipated standards and requirements.

*(Paragraph detailing any incidents or close calls, especially locally, that could have had better outcomes had the firefighters involved had personal escape and rescue systems (PERS).)*

## **FINANCIAL NEED**

We have identified a serious risk to our members and a system that will mitigate that risk, while also giving our interior firefighters equipment to rapidly rescue civilians who are at risk without waiting for help. This will save lives of both firefighters and civilians. However, our city is not in a position, financially, to make the necessary PERS purchases.

*(Paragraph that details the operating budget for the fire department and explains why the department cannot fund the purchase of PERS for its members. This paragraph should also explain why increasing the tax rate in the community to pay for PERS is not feasible. Address city, county or other local income tax and real estate/property taxes and sales tax. Also address inflation and other economic conditions, as appropriate. Finally, explain why PERS need to be purchased now.)*

## **THE BENEFIT TO BE DERIVED FROM THE COST OF THE PROJECT**

The amount requested in this grant is \$XXX. The benefit is substantial as it may ultimately mean the difference between life and death. Benefits will be realized immediately in the form of lives saved and injuries avoided. Firefighters who carry a PERS will be able to save themselves and they will be equipped to save civilians. Firefighters who are issued PERS will carry them, pre-rigged, on every call so that they are immediately available.

Purchase of PERS for each interior firefighter is a one-time investment that will benefit firefighters and civilians in the community for many years to come. In exchange, the reduction of injury can have a significant financial benefit. The annual cost of addressing firefighter injuries in the US is estimated at \$7.8 billion, including workers compensation payments, insured medical expenses, lost productivity and more. Further, the average lifetime cost of injury to a firefighter is estimated at more than \$18,000 (from *The Economic Consequences of Firefighter Injuries and their Prevention*. Final Report developed by TriData Corporation for the United States Department of Commerce, Building and Fire Research Laboratory, National Institute of Standards and Technology, 2004).

PERS equipment makes our firefighters more valuable when responding to calls for mutual aid, especially to neighboring departments that do not equip their members with PERS. A PERS-equipped firefighter can rescue injured firefighters and civilians alone or as part of a RIT team.

Without this grant, there is little hope of acquiring personal escape and rescue systems (PERS) for our interior firefighters in the foreseeable future. This puts both our firefighters and the civilians we serve at risk that can be avoided. The risks that firefighters take have increased as a result of lightweight construction and reduced manpower. Giving firefighters the equipment they need to save themselves is the right thing to do. Giving firefighters the equipment they need to save the civilians they serve is the right thing to do.

## **HOW THE GRANT WILL HELP OUR DAILY OPERATIONS AND HOW THE GRANT WILL PROTECT LIFE AND PROPERTY**

This grant will improve firefighter safety by providing firefighters with the equipment they need to save themselves. It will also save civilian lives by giving firefighters the equipment they need to perform rescues without waiting for help.

The health and life risks for firefighters are well documented. There were 103 firefighter fatalities in 2007 and in 2008, with 30% of these deaths attributed as "caught/trapped" (from "Firefighter Fatalities in the United States 2008," Rita F. Fahy, Paul R. LeBlanc and Joseph L. Molis, NFPA, July 2009). There were more than 80,000 firefighter injuries in 2007, 80% involving hospitalization and more than 20% involving lost work time (from "Firefighter Injuries in the United States 2007," Michael J. Karter, Jr. and Joseph L. Molis, NFPA, October 2008). The PERS equipment we are seeking to acquire will help address this

danger. The systems will serve to provide a safe means of egress from a window or other opening with a hands-free controlled descent to the ground.

The specified equipment in the PERS meets NFPA requirements for life safety rope systems. The equipment will be an integral part of each interior firefighter's gear and it will be carried every day on every call. While the actual emergency uses of this equipment cannot be estimated, a single use to avoid fatality or reduce injury is sufficient justification for the investment.

## **THE BOTTOM LINE**

This is a critical need. In fires and other emergencies, speed saves lives. 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. (From *Fire Officer: Principles and Practice*, by International Association of Fire Chiefs, 2005.) PERS mitigates this risk.

Approval of this grant will allow us to purchase personal escape and rescue systems for our interior firefighters that will allow them to act quickly, will make them safer and will allow them to rescue civilians without waiting for help.

Purchasing this equipment will bring us into compliance with both OSHA and NFPA guidelines and is part of a comprehensive risk management plan.

Without approval of this grant, there is little chance that our department will be able to purchase this equipment, which puts both our firefighters and the civilians in our community at risk.