

## Risk management for volunteer fire departments

---

### Introduction

Volunteer fire departments (VFDs) are primarily comprised of volunteers who are trained in firefighting and other related emergency services for a local town or jurisdiction. These volunteers take on what can be a life-threatening job whenever responding to an emergency call. They regularly put themselves in harm's way in an effort to save people and property in their communities. Whether fighting to extinguish a fire or responding to an emergency call such as an automobile accident, hazmat situation or other emergency, firefighters are exposed to a number of health and safety hazards. Being aware of these hazards and knowing how to mitigate them can help reduce the frequency and severity of injuries, as well as save lives.

Burns, smoke inhalation and other fire-related injuries are commonly reported; however, firefighters also are exposed to health hazards such as strains and sprains, stress-related conditions, and cardiovascular events. The majority of injuries are minor; however, a significant number can be debilitating or career-ending.

The following guide will walk you through some common risks facing firefighters, and it will provide suggestions on how to reduce injuries, minimize the severity, and provide effective post-injury management.



## Risk management for volunteer fire departments

---

### Fire exposures and controls

#### Heat stress

Workers who are exposed to extreme heat or work in hot environments may be at risk of heat stress. When working in these conditions, body temperature may rise, and the body responds by sweating. As the sweat evaporates, it cools the body. If this process does not work, several heat-related illnesses may occur. Heat stress can lead to heat stroke, heat exhaustion, heat cramps or heat rashes. Water is the key to this process as it provides adequate blood volume to transfer heat outward and perspiration to cool the body.

Factors that can result in heat stress include, but are not limited to:

- Humidity, which may inhibit evaporation of sweat;
- Inadequate water intake;
- High ambient air temperature or radiant heat, and
- Various protective clothing that may add to the heat load of the employee.

Best practices for helping prevent heat stress can be broken into three different categories: engineering controls, administrative controls and personal protective equipment (PPE) controls. Utilizing engineering controls, which includes removing the hazard and/or exposure, can be challenging to incorporate due to the nature of the work; however, administrative and PPE controls are effective ways to control exposures. Administrative controls include the evaluation of who can enter the fireground and the regulation of which firefighters are doing certain tasks. Job rotation and effective rehab should also be utilized to monitor the physical condition of each staff member and give opportunities for cooling/warming, rehydration and rest. PPE controls include providing the correct PPE for the task, to help reduce the exposure.

#### Administrative controls

- Supply drinking water, and encourage your firefighters to drink ample fluids before, during and after an emergency call.
- When on duty, firefighters should avoid caffeinated beverages, such as coffee and tea, as they are diuretics. Diuretics are any substances that promote the production and passing of water from your body. Firefighters also should avoid beverages such as soda and fruit juice as the high sugar content can inhibit water uptake.
- Firefighters and supervisors should be properly trained on the signs and symptoms of heat-related illnesses.
- Emergency Medical Service (EMS) support should be provided at all emergency scenes and drills where conditions could create heat stress.
- Consider establishing fireground procedures to monitor firefighters' vital signs, including body temperature, at set points during firefighting operations in order to identify and address potential injuries or temperature-related illnesses that can occur in high-stress/high-temperature environments.
- When working in conditions of high-heat stress, firefighters should be given regular breaks, preferably in air conditioned spaces. They should remove all of their PPE, and take time to cool off and rehydrate. Wet clothing should be removed and replaced with dry, if available.

#### PPE controls

- Firefighters need to be protected with PPE at all times there is an exposure risk. Exposures include elevated temperatures, sharp objects, falling objects, flames, chemicals, pathogens and projectiles. Each staff member should be provided with proper fitting PPE for the exposure anticipated for his or her job description.
- In many cases, PPE will contribute to heat stress due to the nature of the clothing. For this reason, staff members operating in conditions that may lead to heat stress need to have more frequent rehab and shorter work periods.
- Assess environmental conditions on a regular basis and select the most appropriate level of protection. Consider bringing in fresh crews any time extended operations are anticipated in hot or cold temperature settings.

## Risk management for volunteer fire departments

---

### Preventing injuries and deaths due to structural collapse

Firefighters often enter a burning structure to look for and rescue victims. In addition to the fire exposures they face, firefighters must be aware of the danger of a potential structural collapse. The building they enter could possibly collapse at any point during their rescue operation, which could result in severe injury or possibly death.

The following recommendations should be followed in an effort to reduce the frequency and severity of injury due to structural collapse:

- Conduct an initial risk assessment of the fireground.
- Fireground strategy should carefully weigh aggressive interior operations against the likelihood of rescuing a viable victim.
- Maintain proper accountability for all personnel at a fire scene.
- Ensure an adequate number of firefighters are on the scene before engaging in interior firefighting.
- Prior to entering hazardous areas, all firefighters involved should be equipped with two-way communication.
- All firefighters should be provided with personal alert safety system (PASS) devices.
- If possible, pre-fire planning and inspections that cover building materials, components of the structure and building contents should be conducted.
- The presence of light-weight construction, engineered lumber and other construction techniques that reduce the fire strength of a building should be known before the fire. These materials and techniques can cause structural collapse much sooner than in older buildings.
- Fires in vacant or abandoned buildings are especially risky for interior operations. For example, these buildings may be structurally compromised, there may be hazardous materials present, or they may be used for clandestine drug labs. Here again, pre-planning should be done to reveal hazards before the fire.
- Have proper procedures in place for transmitting an evacuation tone or alert immediately when conditions become unsafe for firefighters.
- Be sure to establish a collapse zone around any involved structure or building.

### Explosions, flashovers and backdrafts

Of the numerous hazards your firefighters will face at the fireground, the risk of explosions, flashovers and backdrafts can prove to be some of the most dangerous. Over time, building codes have required more and more energy efficiency when it comes to new structures. While this solves one problem, it creates another. Improved efficiency means tighter buildings, which reduces the inflow of fresh air and the ventilation of smoke and heat. For this reason, fires can increase rapidly when a door or window are opened allowing fresh oxygen to enter. Fire department personnel need to have up-to-date training on how changes in building construction and fuel load have changed the behavior of fires within them. They need to understand how to recognize these types of scenarios and how best to avoid or mitigate them. Coordinating ventilation with attack hose line advancement needs to be emphasized. Always have a charge line ready when opening a door or window to a structure that appears to be sealed upon arrival, with a fire burning inside.

Explosions, as well as flashovers and backdrafts, are violent and destructive. A flashover is characterized by the sudden spread of fire through the room caused by the nearly simultaneous ignition of combustible items in the room. Due to the intensity of a flashover, escaping from one is nearly impossible. Training designed to educate on the warning signs and how to react to them should be provided to all department members to increase safety.

Backdrafts are equally as dynamic and potentially as deadly. They are an explosion that occurs when air reaches a fire that has used up much of the available oxygen. Indications of a backdraft include:

- Puffing voluminous smoke
- Black smoke that becomes dense and yellow-gray or brown in color
- Flame that becomes less visible or becomes dull orange
- Pressurized smoke begins to seep out from any small crack in the structure

## Risk management for volunteer fire departments

---

### Non-fire exposures and controls

#### Biological hazards

Bloodborne pathogens are microorganisms present in human blood and other bodily fluids that can cause infectious diseases. Hepatitis viruses, tuberculosis, and HIV are bloodborne pathogens. They can be contracted as infectious diseases from contaminated blood or other bodily fluids. Because of the nature of emergency response, typical engineering controls are not always viable. Firefighters work in environments that provide inherently unpredictable risks of exposures to bloodborne pathogens, and general infection control procedures should be adapted to these work situations. Proper work practices and prevention strategies should be identified and instituted. An exposure control plan should be implemented and include any firefighters who may be exposed to bloodborne pathogens. The requirements for protecting workers from exposures to bloodborne pathogens are found in the Occupational Safety and Health Administration's (OSHA's) Control of Occupational Exposure to Bloodborne Pathogens standard 29 CFR 1910.1030.

The following is a brief description of some of the elements for inclusion in your department's exposure control plan for bloodborne pathogens. This is not a comprehensive list. For additional information, see 29 CFR 1910.130 at [osha.gov](http://osha.gov). You can also find additional resources at [travelers.com/riskcontrol](http://travelers.com/riskcontrol).

- Mandate universal precautions. Assume all body fluids to be infectious.
- Provide your department members with appropriate PPE, and have proper plans in place to dispose of or clean possibly contaminated PPE.
- Offer hepatitis B vaccinations.
- Maintain appropriate records and confidentiality.
- Review and update your exposure control plan annually, or when changes occur.

Training your employees is essential to successful implementation, and having the plan work. Employers must ensure that their workers receive regular training that covers all elements of the standard including, but not limited to:

- Information on bloodborne pathogens and diseases
- Methods used to control occupational exposures, hepatitis B vaccine and medical evaluation
- Post-exposure protocol

## Risk management for volunteer fire departments

### Exposure to cold weather

According to a National Fire Protection Association (NFPA) study on volunteer firefighter injuries from 2008-2010, 11 percent of all injuries were due to frostbite and heat stress. Frostbite is a condition in which localized damage occurs on the skin and other tissue caused by the cold. The damage is commonly found on extremities. Frostbite occurs in multiple stages:

Frostnip	Frostnip, which is superficial frostbite, involves only the skin and/or tissue immediately beneath it. The skin turns a waxy gray/white color. Yellow-colored areas are also possible.
Frostbite	Injury to soft tissue resulting from exposure to environmental temperatures of less than 32° F. This is caused by freezing of cell and tissue fluids.
Deep frostbite	This cold injury involves not only skin and subcutaneous tissue, but also deeper tissue down to the bone. The skin becomes translucent, waxy, pallid and yellowish in color. Tissue becomes solid to the touch and does not move over joints and/or bones.
Hypothermia	Hypothermia is a medical condition caused by the abnormal lowering of body temperature. A person suffering from hypothermia may exhibit poor coordination, may stumble, may slur speech, and may suffer from mental or cognitive impairment. Severe or untreated hypothermia can lead to unconsciousness or death.

### Controls for cold weather exposures

The following controls should be implemented to help prevent injuries caused by cold exposure:

- Provide your firefighters with proper PPE for the environmental conditions, such as mittens/gloves, helmet liners, appropriate undergarments, and other cold weather gear.
- Standard firefighting protective flash hoods may not provide enough protection against wind, water or cold temperatures. If necessary, additional equipment should be provided to cover the face, neck and ears. Consider having extra gloves, hoods and other equipment available.
- Monitor the temperature and weather conditions. Wind chill temperatures of -10° F and below are particularly dangerous for fingers and ears.
- Train your firefighters to keep an eye on others at the fireground or emergency scene. Instruct them on the signs and symptoms of cold weather injuries.
- Try to keep gear as dry as possible; wet clothing and gear can cause hypothermia to occur much faster, even in non-freezing conditions.
- Rotate crews more frequently in extreme cold conditions and utilize vehicles or other structures as warming places.

### Chemical exposures

Most deaths that occur inside a burning building are not caused by burns, but by smoke inhalation. Smoke inhalation also can cause acute life-threatening injuries. These injuries can result in long-term lung and neurological damage. A contributing factor to this type of injury is the large volume of synthetic products, chemicals and other hazardous materials found at most fires. The potential for firefighters to experience acute and/or chronic respiratory health effects related to exposures during firefighting activities has long been recognized, but injuries persist. Recently, there also has been heightened awareness of synergistic effects including carbon monoxide and hydrogen cyanide. Because of their high potential of respiratory toxicity, the following are of specific concern for firefighters:

- Asphyxiates or poisons, such as carbon monoxide, carbon dioxide, hydrogen cyanide and hydrogen sulfide

## Risk management for volunteer fire departments

---

- Irritants, such as ammonia, hydrogen chloride, particulates, nitrogen oxides and sulfur dioxide
- Carcinogens, such as asbestos, benzene, styrene and certain heavy metals
- Allergens

An additional cardiovascular exposure receiving increased attention is respirable, ultrafine particles (particles less than 0.1 micron in diameter), which have been detected in smoke. Exposure to these gaseous and particulate agents can result in increased firefighter mortality and injury. A higher risk of specific cancers and cardiovascular disease can also be associated with this exposure.

Firefighters may be exposed to these hazards from first entry through overhaul and investigation. It is important that all PPE, particularly a self-contained breathing apparatus (SCBA), be worn while personnel are in an area that has had a fire. During the fire investigation, an air purifying respirator may be adequate. Oxygen and carbon monoxide monitoring should be done frequently to detect changing conditions. Monitoring for carbon monoxide, hydrogen cyanide and low oxygen are particularly important after a fire. Properly using respiratory protection during this phase can significantly reduce the risk of short- and long-term injury.

Residues of these toxic materials may remain on exposed skin and PPE after the response. All staff should be strongly encouraged to shower as soon as possible to remove this, and PPE should be washed in an appropriate manner as well.

### Hazmat conditions

Due to the nature of some emergency calls your department may respond to, it is imperative to have an understanding of how to respond to a situation that involves hazardous materials. Gasoline, kerosene or bottled (pressurized) gas are common hazardous materials; however, there are many more substances that can pose the same or higher risk of injury and death. Hazardous materials can be found at a fireground or emergency scene so it is important for your department to have a basic understanding of what to do in a situation that involves these materials. Many resources are available for learning how to deal with hazardous materials including text books, online programs and training classes.

According to NFPA 472, *Professional Competence of Responders to Hazardous Materials Incidents*, fire department members and officers should be trained in how to handle hazardous material incidents. The standard also states that all fire department personnel should be certified at the awareness level at a minimum. Department personnel involved in hazardous material incidents should also minimally meet the U.S. Environmental Protection Agency (EPA) and OSHA requirements for response at the operations level. Additional training above these minimum competencies is also recommended, particularly on locally specific or frequent hazards.

### Slips, trips and falls

Slips, trips and falls are a major cause of injury to employees in the U.S. For volunteer firefighters (VFFs), the fireground is the leading location for all injuries to firefighters. According to an NFPA study, almost 25 percent of injuries were caused by slips, trips and falls. The high rate of these incidents can be partially attributed to:

- Operations on rooftops;
- Multi-floor access from ground ladders;
- Weather conditions;
- Wet working surfaces. and
- Obstructed views while performing duties.

Limited visibility – This becomes a factor because it can be challenging to see the walking surface when your sightline is interrupted. Face masks on SCBAs can limit the wearer's visibility. This can make it difficult for firefighters to visualize their walking paths and to avoid hazards such as ice, oil holes in roofs, and other debris commonly found on the fire scene. Operating in a smoke-filled structure where visibility is often zero, makes slips, trips and falls even more likely.

Proper footwear – There is little control over the variables on the fireground, resulting in the need for appropriate PPE, including proper footwear. The contact between bunker boots and the walking surfaces provides the wearer some

## Risk management for volunteer fire departments

protection against slips, trips and falls. It is beneficial to have policies in place for requiring systematic checks of bunker gear for heat or physical damage. Inspection of protective footwear for damage and proper tread depth should be included in these checks.

### Vehicle accidents and driving safety

According to the NFPA study on volunteer firefighter injuries from 2008-2010, approximately 8 percent of VFFs who are injured in the line of duty were injured while responding to, or returning from incidents, with the majority of those injuries resulting from vehicle crashes. Investigations have found a consistent pattern of driver error, improper vehicle maintenance, speed and lack of seatbelt use to be among the contributing factors. Numerous firefighters also have been seriously injured or killed while working at emergency sites after being struck by vehicles. These factors help to illustrate the importance of developing, implementing, and enforcing a department-wide driving policy. The driving policy should be in written form and be clearly communicated to all department members. All members who could potentially drive during the course of their duties, whether a personal auto or department vehicle, should be required to review all driving policies and should receive regular driver training.

Some important aspects to include in your department's driving policy include, but are not limited to:

- Distracted driving – There are many distractions that can be present while driving an emergency or personal vehicle. Keeping distractions to a minimum is critical to safe driving.
  - > If possible, two-way radios or mobile devices should not be used while driving. Use of these devices should be limited to pertinent response communication, such as signing on air and giving and/or receiving instructions while en-route to the emergency.
  - > Being distracted by others in the vehicle.
  - > Objects in the vehicle that may move while driving.
  - > Other drivers on the road
- Drowsy driving – Driving while fatigued or sleepy is an important safety concern for drivers. When drowsy or just having woken up, your ability to perceive and react to hazards can be reduced.
- Struck-by accidents – When department members need to control traffic at an emergency scene they need to have the proper equipment, including an American National Standards Institute (ANSI) compliant traffic safety vest, a flashlight, and signs. Whenever possible, portable signs and cones should be used to direct traffic rather than putting a person in harm's way. Training on proper traffic control procedures on a regular basis also is important.

### Health and wellness program

Firefighting is one of the nation's most dangerous and hazardous jobs. High physical stress levels and strains and sprains are all too common. Among all firefighters, the leading cause of injury is overexertion resulting in strains, sprains and muscle pain. Some of this is due to being exposed to periods of low activity followed by periods of intense, strenuous activity.

Good physical condition is a critical component in the body's ability to transition successfully, without injury, between the two activity levels presented to firefighters. The prevalence of cardiovascular illness and deaths define the need for a comprehensive health and wellness program. Emergency responders are heavily relied on to protect and save lives and property in times of natural or manmade disasters and other emergencies. In order to meet the demands of their job, they must first be healthy, safe and able to respond. Education is one of the best components of a successful health and wellness program.

### Importance of a health and wellness program

- Being involved in a health and wellness program can help to improve the heart health of participating members.
- Conditioning can improve heat tolerance, which helps firefighters better tolerate conditions that cause heat stress.
- Firehouses should be tobacco free and all members encouraged to avoid using tobacco.
- According to the Federal Emergency Management Agency (FEMA), building strength through a health and wellness program can help prevent the development of some back problems.

## Risk management for volunteer fire departments

---

- Per FEMA, leading an active lifestyle may help improve a participating member's emotional state, which can help improve emotional reactions during life-and-death situations.
- Establishing a health and wellness program for your department members helps to encourage an overall healthy lifestyle.

The goal of your health and wellness program should be to educate your VFFs on healthy lifestyles while making them more aware of their own personal health and wellness. Encouraging a healthy lifestyle can be accomplished through the combined efforts to enhance awareness, change behaviors and create environments that support good health practices.

Firefighters can do their part by having regular health screenings. These screenings can determine if they have personal factors that predispose them to certain health issues.

### Planning

Thoroughly planning out your program is the most important step in implementing a health and wellness program. A vision is needed to provide guidance on how to develop and implement a program that fits the needs of your department. In developing your program, be sure to include core components, which include, but are not limited to:

- Regular fitness screening and medical evaluations – These screenings can help determine whether the individual fits into a low, moderate or high risk for participation in a fitness program. Examinations should be standardized for all department members.
- Fitness programs (cardiovascular, strength and flexibility training) – These programs should be designed to improve an individual's physical condition and endurance. They may assist with the reduction of a number of injuries and health problems that firefighters face.
- Behavioral modification (smoking cessation, hypertension, diet, cholesterol and diabetes) – Your program should help encourage modification of behaviors that can lead to a healthier lifestyle.
  - > Smoking – smoking cessation can help reduce the risk of a heart attack and cardiovascular disease.
  - > Hypertension – lifestyle modification can help reduce hypertension, and it is recommended that members who have this condition consult with their doctor on how to reduce hypertension.
  - > Diet – an appropriate diet is an important factor in the prevention of many diseases and for overall good health.
- Member education – Education is an important aspect of your program. Teaching your members why it is beneficial to participate in the program can play a significant role in increasing member participation. Fully educating members can help in changing their mindset.
- Appointment of a qualified health and fitness coordinator to oversee your program – When developing your health and wellness program, a department member(s) should be assigned the role of overseeing the program. Having leadership can help create a positive change in the department. The coordinators should be advocates for the program, and offer guidance to the members. Those in leadership should support the program in both words and actions. If volunteer members see their leaders participating, they may view health and wellness as a departmental priority.

### Program implementation

For additional resources on implementing a health and wellness program, access [healthy-firefighter.org/start-a-program](http://healthy-firefighter.org/start-a-program).

### Post-injury management (PIM)

Work related injuries to VFFs create a somewhat unique situation because of the lack of the traditional employer/employee relationship. A VFF generally earns his/her primary income from an employer other than VFD. It is important that each VFD and every VFF know what to do when an injury occurs.

## Risk management for volunteer fire departments

---

### Immediate post-injury response

The first 24 hours are critical to managing a work-related injury. Who does what, and the sequence and manner in which it is carried out is critical to the outcome of the workers compensation claim. Best practices should include, but are not limited to:

- Respond to the injured member in a caring and compassionate manner.
- Provide transportation to and from the medical provider for the initial visit.
- Document the injury details immediately.
- Analyze accidents promptly (within 24 hours) and document findings and corrective actions.
- Report the claim within 24 hours of the member's report of injury by calling Travelers at (800) 238-6255.

### Medical providers

Quality medical care is an important part of timely recovery and a safe return to work. It can be beneficial to have a partnership with a medical provider who understands your fire department and the tasks a VFF performs. Our Claim Professional will work with you to establish a relationship. Our Claim Professional will:

- Assist in the selection of providers that deliver timely, quality care and communicate well with injured VFFs and the department.
- Assist in the selection of providers who specialize in occupational health in order to facilitate a comprehensive medical recuperation plan.
- Provide you with relevant and timely information on the VFF's medical status and physical restrictions.

### Return to duty

During a VFF's recuperation from a work-related injury, there may be limitations set by the medical provider on the physical capabilities of the individual. It is important these restrictions are known and proper controls are established to ensure a VFF does not perform tasks beyond these limits. This may require a decision not to allow this member to participate in any firefighting activity until fully released by the medical provider. It may require a restriction on the types of tasks allowable during a fire event or off-time at the station. In all cases, our Claim Professional will ensure the medical provider's instructions will be clearly stated and easily understood, be current, and be the basis for determining what work activity that can be safely performed.

Some key program controls that should be considered include, but are not limited to:

- Work with our Claim Professional who will coordinate/communicate specific work restrictions for injured members.
- Communicate your return to duty policy to all members so they know how medical restrictions will be handled.
- Develop a method to ensure all restriction information is promptly reported to department management.
- Clearly communicate to members any limitations on the tasks they are allowed to perform and their responsibility to consistently conform to work limits at all times.
- Be sure your department supervisors are aware of a member's restrictions, and support the department's effort to remain compliant with the medical provider's instructions.

### Case management

It is important to have a person identified as the point of contact within the department to correspond with our Claim Professional. This Workers Compensation Coordinator (WCC) can monitor activities relating to workers compensation to ensure that procedures are properly followed, and that VFFs are provided with correct information and support. Best practices that should be followed include, but are not limited to:

- One person within the department, generally your department's most senior administrator, should be designated to coordinate all contact with the Claim Professional. This person should be well organized and have a good rapport with all members of the department.
- The WCC should stay in weekly contact with an injured member

## Risk management for volunteer fire departments

---

- The WCC should communicate, as needed, with our Claim Professional to remain current on the VFF's medical status, and remain updated on activity restrictions imposed by the treating physician.

### **Performance measurement**

Measuring the success of your department's PIM process can help to identify trends for further loss reduction strategies. It is recommended that your department:

- Track all injuries, particularly those resulting in medical restrictions.
- Closely work with your Travelers Claim Adjuster on all open claims.
- Ensure corrective actions identified during the accident analysis process are fully implemented and achieve the objective of reducing the chance of a recurrence.
- Review the effectiveness of any implemented changes some time later and make adjustments if necessary.

### **General guidance on PPE**

PPE has proven to be effective in controlling a firefighter's exposure to certain hazards. Aspects such as selection, proper fit, policies and maintenance of PPE should all be taken into consideration when determining the best PPE for your department.

A member's station wear serves as a work uniform designed to be worn under structural firefighter gear. If feasible for your department, it is recommended that station wear be fire resistant. If fire-resistant attire is not available, another option is to ensure your members wear fabric made of 100 percent all-natural fibers such as cotton. Fabrics such as polyester, fabric blends and non-fire resistant synthetics should be avoided as these can melt at a much lower temperature.

Structural firefighting gear, also known as turnout or bunker gear, includes a helmet, coat/jackets, pants, gloves, hood, boots and SCBA. All components of this gear should meet national standards for structural firefighting PPE. Only PPE that is manufactured in accordance with NFPA Standard 1971 should be used. Structural firefighting gear is made in a three-layer system:

## Risk management for volunteer fire departments

Primary functions	
Outer shell	Provides first line protection against elements of fighting a fire, such as heat and flame.
Moisture barrier	Protects from moisture affecting the body.
Thermal liner	Offers protection against thermal exposures.
Proper fit and sizing of PPE (per NFPA 1971 standard)	
Ensure proper fit of PPE	Proper fit of PPE is imperative to the functionality of the gear. The NFPA recommends either having a trained department member or a representative from the manufacturer size firefighters' gear.
Overlap	Create sufficient overlap of gear to protect against any part of the body being exposed to the fire or other elements.

Important aspects to remember when fitting PPE include, but are not limited to:

- Tight clothing can create compression issues. Having gear fit slightly larger is better than having it fit too tightly. Air can be an excellent insulator without adding weight, and having gear that is too tight eliminates air space. Slightly large gear also allows for additional clothing to be worn in cold weather.
- Bunker pants should fit comfortably at the waist. If the pants are a low-rise style, a few inches below the waist is the proper fit. Ensure pants are not too long for the member wearing them. If they are too long, the cuffs can wear out and they can become a tripping hazard. It also is important to make sure the pants are not too short, as this may restrict movement and impair protection.

### Selection of PPE

National standards recommend that a fire department perform a thorough risk assessment of the following aspects when selecting PPE:

- Type of duties performed
- Incident operations
- Geographic location and climate

### Maintenance of PPE

A highly important aspect of PPE is the proper and thorough maintenance of PPE. NFPA 1851 provides information regarding all aspects of maintaining PPE, from inspection to cleaning and repair, including the following:

- Improper storage, care and cleaning of PPE can negatively impact its protective quality. Manufacturer's recommendations should be closely followed in order to properly maintain it. Following the proper maintenance requirements can also help to extend the useful life of the garment.
- Any needed repairs should be carried out by qualified personnel or vendors.
- PPE should be kept clean of all contaminants. All protective clothing should be laundered as recommended by the manufacturer after every exposure to smoke or hazardous substances.
- PPE with fabric should not be stored in areas where it will be exposed to any amount of sunlight.
- Regular PPE inspections should take place, and any needed repairs should be made in a timely manner.
- Cracked helmets should be retired from service.



## Risk management for volunteer fire departments

---

All department members should be properly trained in maintaining their PPE. Your members should be trained on how to conduct routine cleanings and inspections for damage that will require more advanced cleaning or repair. Your training should be based on department policies, and should reflect NFPA 1851 and OSHA regulations.

### SCBA training

An SCBA is a device worn by firefighters entering a burning structure or at any time they may be exposed to hazardous atmospheres. The apparatus is designed to provide breathable air in an atmosphere that is immediately dangerous to life and health. "Self-contained" refers to the breathing set not being dependent on a remote supply, but rather from a high-pressure air tank worn on the back. Utilizing SCBAs gives your firefighters more freedom to move around the fireground than if they were tethered to a remote air supply. Using an SCBA improperly will present its own challenges and dangers. SCBA familiarization and regular use is a highly important part of your training programs.

Reviewing past near-miss incidents involving SCBAs or air management can provide helpful information on preventing the same mistakes from happening again. Classroom training is an important part of SCBA training; however, incorporating hands-on training is a must. Some basics of SCBA maintenance and training you should consider include, but are not limited to:

- SCBA checks – The SCBA used by a firefighter has a direct impact on personal safety and, therefore, it must be ready to go at all times. All firefighters should be involved in regular and spot checks of SCBA and these should be documented.
- Consumption drills – By completing this type of training, firefighters can understand the amount of working time they have for different sized air bottles, under different conditions. Several factors will determine working times, and your members must be aware of them before being introduced into a hazardous environment.
- Fit testing – Proper fit of the mask portion of an SCBA is extremely important for ensuring its safe use. Annual fit testing is required by OSHA and should be done any time there is a question about the ability of a member to get a good seal, including any new style facial hair.
- A written policy regarding SCBA selection, use, maintenance, and facial hair should be available.

### Recordkeeping

Recordkeeping by a VFD is a beneficial function like any other business. Proper recordkeeping provides an avenue to keep up-to-date information on an employee's training, recertification, medical screening and PPE, equipment purchases and maintenance, accident investigations and emergency responses. It may also be important in certain scenarios to avoid or minimize liability exposure. Software programs are available to help organize and maintain records.

Recommended documentation should include, but is not limited to:

- PPE – purchase information, routine inspections, maintenance, and all repairs
- SCBA – purchase, maintenance, all repairs and fit testing results for all members
- Fire pumps and hoses – purchase information, maintenance, annual test results and all repairs
- Training activities
  - > Objectives and topics covered
  - > Instructors present
  - > Date and time
  - > Attendance list

## Risk management for volunteer fire departments

---

### Skills training and drills

Training and drills are beneficial to the safety of your department. This is especially true in smaller departments where the lower run volume can result in rusty skills. Each department should have a dedicated training officer who has responsibility for planning each session. This would include identifying training needs, lining up instructors, reviewing lesson plans, and arranging for special equipment or other needs. The following training tools are recommended for providing a level of proficiency in firefighting:

- Facilities and aids
  - > Drill tower
  - > Fire building including a smoke room
  - > Library and training manuals
  - > Training videos
  - > Pump cutaway and/or hydrant cutaway
  - > Multiple-company and night drills

Other generalized types of training include, but are not limited to:

- Company training
- Classes for department officers
- Driver and operator training
- Radioactive and hazardous material training
- Pre-fire planning inspections in the community
- Rescue activities, including vehicle extrications



## Risk management for volunteer fire departments

---

### Additional resources

[healthy-firefighter.org](http://healthy-firefighter.org)

[firefighternearmiss.com/index.php/near-miss-partners](http://firefighternearmiss.com/index.php/near-miss-partners)

[nfpa.org](http://nfpa.org)

[usfa.fema.gov/nfa/](http://usfa.fema.gov/nfa/)

[firehero.org/](http://firehero.org/)

[usfa.fema.gov/fireservice/firefighter\\_health\\_safety/safety/](http://usfa.fema.gov/fireservice/firefighter_health_safety/safety/)

[usfa.fema.gov/fireservice/firefighter\\_health\\_safety/health\\_fitness/](http://usfa.fema.gov/fireservice/firefighter_health_safety/health_fitness/)

[firefighternearmiss.com](http://firefighternearmiss.com)

[firefighterclosecalls.com/](http://firefighterclosecalls.com/)

[iafc.org/Operations/content.cfm?ItemNumber=1534%20](http://iafc.org/Operations/content.cfm?ItemNumber=1534%20)

[everyongoeshome.com/resources/](http://everyongoeshome.com/resources/)

[riskcontrol.com](http://riskcontrol.com)

[mywcinfo.com](http://mywcinfo.com)

**For more information, log in to the Risk Control Customer Portal at [travelers.com/riskcontrol](http://travelers.com/riskcontrol). (Need help? Read our [Registration Quick Guide](#).) You also can contact your Risk Control consultant or email [Ask-Risk-Control@travelers.com](mailto:Ask-Risk-Control@travelers.com)**



---

[travelers.com](http://travelers.com)

The Travelers Indemnity Company and its property casualty affiliates. One Tower Square, Hartford, CT 06183

The information provided in this document is intended for use as a guideline and is not intended as, nor does it constitute, legal or professional advice. Travelers does not warrant that adherence to, or compliance with, any recommendations, best practices, checklists, or guidelines will result in a particular outcome. In no event will Travelers or any of its subsidiaries or affiliates be liable in tort or in contract to anyone who has access to or uses this information. Travelers does not warrant that the information in this document constitutes a complete and finite list of each and every item or procedure related to the topics or issues referenced herein. Furthermore, federal, state or local laws, regulations, standards or codes may change from time to time and the reader should always refer to the most current requirements. This material does not amend, or otherwise affect, the provisions or coverages of any insurance policy or bond issued by Travelers, nor is it a representation that coverage does or does not exist for any particular claim or loss under any such policy or bond. Coverage depends on the facts and circumstances involved in the claim or loss, all applicable policy or bond provisions, and any applicable law.

© 2013 The Travelers Indemnity Company. All rights reserved. Travelers and the Travelers Umbrella logo are registered trademarks of The Travelers Indemnity Company in the U.S. and other countries. A0504RMG