# Fire Fighter – Fact Sheets

## WHAT SHOULD I KNOW BEFORE READING ABOUT THIS OCCUPATION?

This profile summarizes the common issues and duties for fire fighters. Fire fighters may be called to any number of settings or workplaces. It is impossible to predict all of the possible hazards a fire fighter may encounter. The demands of fire fighting can be sporadic and unpredictable with intermittent periods of intense physical and psychological stress. This summary focuses on the major job duties that most fire fighters (those fighting primarily structural fires) would have in common.

**What, briefly, does a fire fighter do?**

Main duties of a fire fighter include:

- Respond to fire alarms, accidents (automobile, industrial, aviation, etc.), building collapses, acts of nature (tornadoes, floods, etc.) and other emergency incidents.
- Rescue victims.
- Control fire using various equipment and methods (axes, water, chemical extinguishers, ladders, vehicles, boats, etc.).
- Provide first aid.
- Provide safety education to the public.

Specialized teams may be organized to respond to emergencies involving specific hazardous products or situations.

**What are some health and safety hazards associated with being a fire fighter?**

Hazards typically fall into one of six general categories as listed below.

**Biological**

While helping victims of fire or accidents, fire fighters may be exposed to contagious and infectious diseases including blood borne diseases such as AIDS, hepatitis B and C.

**Chemical**

On the scene of a fire, there is exposure to various combustion products. The

toxicity of the smoke depends greatly on the fuel (the materials or chemicals being burnt), the heat of the fire, and how much oxygen is available for combustion. Common combustion products include:

- carbon monoxide.
- hydrogen cyanide.
- nitrogen dioxide, and many others.

In addition, oxygen depletion from the air is common during fires. Hypoxia (the condition caused by little or no oxygen in the air) can result in a loss of physical performance, confusion and inability to escape.

Exposure to these hazards will also depend on the duties of the individual (e.g., those who enter the building during the fire versus those who clean-up after the fire has been extinguished).

Exposure to other chemicals, products, pharmaceuticals and medicines, including exposure to opiods may be possible if assisting victims or when providing first aid.

**Ergonomic**

There are many situations where physical demands involve very strenuous work, force, repetition, awkward postures and prolonged activities, often under extreme conditions. These include:

- overexertion (reaching, carrying, etc.).
- walking or working on your feet for long periods of time.
- lifting.

Fire fighters will also work and train wearing heavy equipment, self-contained breathing apparatus (SCBA), and personal protective equipment which may require more effort to perform the same tasks.

**Physical**

Heat stress is common. Heat may come from various sources including the fire and surroundings, but heat is also produced by the body during work (exercise). This effect can be worsened by the properties of the protective clothing and continuous physical exertion. The heat stress and exertion can cause fatigue.

Fire fighters can be exposed to excessive noise levels.

Fire fighters are also required to work outdoors a great deal of the time. As a result, they may be exposed to extreme temperatures (both cold and heat) in addition to the heat of the fire.

**Safety**

When responding to a fire emergency, there are many situations (e.g. the fire itself structures breaking, unstable floors and falling objects), where there is a risk of injury. Falls from heights are also common.

Fires can also create dangerous situations such as:

- Sudden ignition of products creating flashover.

- Backdraft where air is introduced to an area that is superheated and oxygen starved.

Driving to the scene may also introduce increased potential for traffic accidents due to speeds travelled and road/weather conditions.

Fire fighters also have a high risk of burns, especially those who enter the burning building/structure first and those who are holding the front end of the nozzle. Dry hot air typically is not hazardous, but steam or wet hot air can cause burns. Radiant heat is also an issue, and burns can occur for extended exposure.

**Psychological**

Fire fighters are exposed to critical events where there is often a grave or uncertain danger. Exposure to serious traumatic events (or consequence of the event) is another cause of stress. As with most emergency services, there are long periods of quiet or routine, interrupted abruptly by periods of intense stress or activity.

In addition, most firefighters work shifts or extended work days which can have health effects including fatigue.

However, it is important to note the positive aspects of being a fire fighter. It is a highly respected profession and highly valued in the community. Also, there is usually a high sense of team membership.

**Are there any long-term health effects of being a fire fighter?**

According to the International Labour Office (ILO), there have been some studies that have shown some long term health consequences from fire fighting. In other studies, similar connections could not be made. In either case, the need for working safely is extremely important.

Fire fighters may develop:

- cancer, particularly genito-urinary (including kidney, ureter and bladder).
- back injuries and other strains.
- diseases such as AIDS and hepatitis.
- cardiovascular disease due to a multitude of toxic substances when fighting a fire. For example, carbon monoxide exposure is directly linked with cardiac toxicity.

Under further study are:

- chronic and lung diseases, which are thought to be in part due to the toxic gases produced during a fire, but also the level of physical activity required during intense periods of time.
- cancers of the lymphatic and hematopoietic (blood) system, brain, lung, and the central nervous system.
- aortic aneurysms.

Regulators reports that firefighters are at risk of on-duty or sudden cardiovascular events or deaths (which includes heart attacks and coronary heart disease).  Regulators states that a combination of personal (age, gender, family

history, diabetes, hypertension, smoking, high blood cholesterol, obesity and lack of exercise) and workplace factors (heavy exertion, heat stress, high noise levels, shift work/overtime, and exposure to carbon monoxide, hydrogen cyanide, particulate matter, and environmental tobacco smoke) are associated with these events.

**What are some preventative measures that can be taken?**

Because of the wide variety of hazards a fire fighter may encounter, extensive training and experience are often the best way to prevent injury.

- Hand washing is extremely important for the reduction of infections.
- Learn about and use the correct routine practices to prevent blood borne pathogen infection.
- Always use the correct personal protective equipment (PPE) or other barriers for the task.
- Learn safe lifting techniques.
- If a job requires work in an awkward position (e.g., with hands above shoulder level) be sure to take breaks where possible.
- Follow a recommended shift work pattern, and be aware of the hazards associated with shift work and fatigue.
- Ask your workplace to establish safe procedures for working alone or develop procedures where this situation can be avoided altogether.
- Consider offering a debriefing or session after a critical event to help reduce the impact from stress.
- Stay fit through regular exercise and training. While it will help to make sure you can perform your job satisfactorily, it will also help reduce the likelihood of injuries.

**What are some general safe work practices to know?**

Fire fighters will need to know:

- the correct routine practices procedures to prevent blood borne pathogen infection. (e.g., AIDS, hepatitis B and C).
- hand washing and routine practices
- proper selection, use, maintenance and storage of PPE, where appropriate.
- selection of footwear.
- prevention of needlestick injuries.
- manual material handling (lifting) techniques.
- information about shiftwork.
- how to work alone (general information) and working alone with patients.
- working safely on ladders.
- how to work safety with compressed gases.

All workers should:

- follow company safety rules.
- know about WHMIS and SDSs.
- know your hazard reporting procedures.
- follow good housekeeping procedures.