

Occupations and Workplaces

Firefighter

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What should I know before reading about this occupation?

This profile summarizes the common issues and duties for firefighters. Firefighters may be called to any number of settings or workplaces. It is impossible to predict all of the possible hazards a firefighter 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 of primarily structural firefighters. For more information specific to wildland firefighters, please see the OSH Answers [Wildland Firefighter](#).

What, briefly, does a firefighter do?

Main duties of a firefighter include:

- Respond to fire alarms, incidents (automobile, industrial, aviation, etc.), building collapses, acts of nature (tornadoes, floods, etc.) and other emergencies.
- Rescue individuals in need of assistance.
- 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 firefighter?

- While helping individuals, there is possible exposure to contagious and infectious diseases, including blood-borne diseases such as [AIDS](#), hepatitis [B](#) and [C](#).
- Exposure to various combustion products. The toxicity of smoke depends greatly on the fuel (the materials or chemicals being burnt), the fire's heat, and the amount of available oxygen for combustion. Common combustion products include:
 - fine particulate matter
 - [carbon monoxide](#)
 - [carbon dioxide](#)
 - nitrogen oxides
 - sulfur oxides
 - volatile organic compounds
 - formaldehyde
- Oxygen depletion - 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 other chemicals, products, pharmaceuticals, and medicines, including opioids.
- Working with compressed gases (e.g., self-contained breathing apparatus).
- Situations where physical demands involve very strenuous work, force, repetition, awkward postures and prolonged activities, often under extreme conditions, including:
 - overexertion (reaching, carrying, etc.) and other risk factors for [work-related musculoskeletal disorders](#)
 - walking or [standing](#) for long periods of time
 - [lifting](#)
- Wearing heavy equipment, self-contained breathing apparatus (SCBA), and personal protective equipment, which may require more effort to perform the same tasks.
- [Heat stress](#).

- Excessive [noise](#) levels.
- [Ultraviolet radiation](#).
- Extreme temperatures (both [cold](#) and [heat](#)).
- Unpredictable working conditions.
- The danger of driving at high speeds, often in difficult traffic or [weather](#) conditions.
- 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.

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.
- Working on [ladders](#).
- [Falls from heights](#).
- [Slips, trips and falls](#).
- Risk of injury from the various locations where the fire department may be called to, such as explosions, unstable structures and surfaces, or falling objects; or [working at heights](#) or [near traffic](#), [water](#), [confined spaces](#), large crowds, violent situations, etc.
- Working with chainsaws or similar equipment.
- Exposure to serious traumatic events (or consequences of the event) resulting in [stress](#) or [post-traumatic stress disorder](#).
- [Work shifts](#) or [extended work days](#).
- [Fatigue](#).
- [Workplace violence](#) or harassment, and harassment from the public.

Are there any long-term health effects of being a firefighter?

Yes. The International Agency for Research on Cancer (IARC) has evaluated the carcinogenicity of occupational exposure of a firefighter as carcinogenic to humans (Group 1) based on sufficient evidence for cancer in humans. IARC concluded that there was:

- sufficient evidence for the following cancer types: mesothelioma and bladder cancer.
- limited evidence for the following cancer types: colon cancer, prostate cancer, testicular cancer, melanoma of the skin, and non-Hodgkin lymphoma.

Firefighters may be exposed to many carcinogens, including:

- Building materials such as asbestos.
- Chemical flame retardants.
- Combustion products such as polycyclic aromatic hydrocarbons (PAHs).
- Crystalline silica.
- Diesel engine exhaust.
- Heavy metals such as cadmium and lead.
- Per- and polyfluoroalkyl substances (PFAS) in foams and bunker gear.
- Benzene.

For more information, please see the tip sheet, [Occupational Cancer Awareness and Prevention in the Fire Service](#).

Firefighters also develop:

- [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.

What are some general safe work practices to know?

Firefighters will need to know:

- the correct [routine practices](#) and 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 personal protective equipment ([PPE](#)), such as [footwear](#), where appropriate.
- 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 safely with [compressed gases](#).
- how to perform [gross decontamination](#) of bunker gear.

- how to properly launder and dry bunker gear.
- proper sun protection by wearing sunscreen with a sun protection factor (SPF) of at least 30.

All workers should:

- follow company safety rules.
- know about [WHMIS](#) and [SDSs](#).
- know your [hazard reporting](#) procedures.
- follow good [housekeeping](#) procedures.

Where can I get more information?

Because of the wide variety of situations in which a firefighter may work and the vast range of activities and materials encountered, all situations cannot be covered in this document.

NOTE: If you have health concerns, ask your doctor or medical professional for advice.

If you have any questions or concerns about your specific workplace, you can ask one or more of the following for help:

- your health and safety committee or representative.
- your union.
- your safety department.
- your supervisor or manager.
- your local [government department responsible for health and safety](#).

General information is available in OSH Answers or through the CCOHS person-to-person Safety InfoLine's [Inquiries Service](#).

What should be included in an emergency preparedness and response plan for firefighters?

Emergency response plans help prepare for unforeseen situations that may occur during a response, such as explosions, injuries, medical emergencies, and other crisis situations.

For firefighter organizations, an emergency response plan may include:

- Procedures for alerting workers in case of an emergency.
- Rescue protocols for injured or trapped workers.

- Worker evacuation procedures and designated assembly locations.
- Contact information for key personnel.
- First aid and medical assistance.
- Measures for preventing workplace violence.
- Worker training and drills.

The plan should be tailored to your organization, the unique challenges of a remote environment, and changing fire conditions.

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