

# JOB DESCRIPTIONS / ANALYSIS

## Firefighter Environmental Conditions Overview

- Fifty to ninety percent of work time is spent outside a building and exposed to the sun, wind, rain, or snow.
- Firefighters must tolerate frequent extreme fluctuations of temperature. Environment outside building may be 5° to 400°F, but inside firefighters are doing heavy work in hot buildings (up to 1000°F) while wearing equipment which significantly impairs body cooling systems.
- Firefighters must work in environments that vary greatly from low to high humidity. Turnout equipment significantly impairs body-cooling mechanisms.
- There is the frequent possibility that firefighters may be working under wet and muddy conditions.
- Firefighters must frequently perform sustained work on slippery surfaces including rooftops.
- Firefighters frequently face the possibility of sustaining a severe injury (cuts, bruises, burns, strains, fractures, or amputations) on the job.
- Firefighters are frequently required to perform work from aerial ladders, scaffolding, roofs, or other elevations over 12 feet from the ground.
- Firefighters are frequently required to perform work in confined spaces or cramped body positions (e.g., attics, cars, under houses, closets).
- Firefighters are often required to work on or about moving machinery or equipment or in the vicinity of vehicles in motion (e.g., chain saws, fire trucks, cutting torches).
- Firefighters are often exposed to vibration when riding in fire trucks or operating chain saws.
- Firefighters are intermittently exposed to noise levels over 90-dba when riding fire trucks under emergency conditions and when fighting fires.
- Firefighters are frequently exposed to the possibility of burn injuries caused by heat, fire, chemicals or electricity.
- Firefighters may have occasional exposure to non-ionizing radiation (ships or rooftops).
- Firefighters have intermittent exposure to dust that may contain carcinogens (such as asbestos or benzopyrene) during clean-up operations.
- Firefighters have frequent potential exposure to respiratory irritants and sensitizers, especially during clean-up operations (irritant chemicals, smoke, isocyanates, etc.).
- Firefighters have frequent potential exposure to toxic substances (such as hydrogen cyanide and hydrochloric acid from plastic's fires, carbon monoxide, nitrogen dioxide, or organic solvents).
- Firefighters may occasionally have skin contact with oil and grease, especially during maintenance and repair of firefighting equipment.
- Firefighters may encounter noxious odors (burning flesh, chemical spills).
- Firefighters may work with or near substances that may explode.
- Firefighters occasionally have contact with un-insulated or unshielded electrical equipment.

- Firefighters may encounter radiation hazards (isotopes in hospitals, laboratories).
- Firefighters riding Aid cars may frequently have exposure to infectious agents (such as hepatitis B virus). There is the possibility of exposure to persons infected with the AIDS virus.
- Firefighters are often exposed to the following stressors:
  - Tight time frames and critical deadlines in life-threatening emergency situations
  - Acutely injured people and their families and friends
  - Crucial decisions in emergency situations that involve public safety and safety of fellow firefighters and self
  - Tasks requiring long periods of intense concentration
  - Unpleasant situations (e.g." burned people or animals)
  - *24-hour shifts, during which sleep is sporadic or non-existent*
  - The job of firefighter is complex and extremely variable from shift to shift.
- Firefighters are required to use positive pressure breathing apparatus with 1.5 inches of water column resistance to exhalation at 40 liters per minute.