

The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research 

FIGHTING WILDFIRES

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Burned remains of trees, vehicles, and houses present many hazards during cleanup activities following a wildfire.
iStock/Getty Images Plus.

 This information was developed by NIOSH for the [Environmental Protection Agency's: Wildfire Smoke A Guide for Public Health Officials \(rev 2019\)](#)  

Hazards During Cleanup Work Following Wildfires

The purpose of this webpage is to discuss some of the health and safety hazards that homeowners and workers may encounter after a wildfire. This document is not designed to address health and safety for firefighters or other emergency response workers during a wildfire or other emergency event.

After a wildfire has ended, cleanup and recovery activities are often needed. These activities may pose health and safety hazards that require necessary precautions. In most cases, it may be more appropriate for professional cleanup and disaster restoration companies, rather than homeowners or volunteers, to conduct this work. Although the types of hazards may be different for each wildfire, some common hazards include:

1. Contact With Fire

After a wildfire, trained firefighters will make sure the fire is completely out. If there is any chance the wildfire could reignite, leave immediately and notify emergency personnel.

2. Burnt and Unstable Structures

Be aware of unstable and damaged houses and other structures after a wildfire. Do not assume that these areas are safe or stable because damage may not be noticeable and can create a risk for serious injuries from slips, falls, punctures, or being struck by collapsing materials.

Safety Measures

To prevent injuries from burnt and unstable structures:

- Conduct a thorough inspection and identify and eliminate hazards before conducting any work. Avoid work around fire-damaged structures, including stairs, floors, and roofs, until an engineer or architect examines and certifies the structure is safe.
- Wear personal protective equipment, including long sleeved shirts and pants, hard hats, safety glasses, leather gloves, and steel toe boots, to reduce the risk of injury.
- Leave immediately if a structure shifts or makes an unusual noise that could signal a possible collapse.

3. Burnt and Unstable Trees

Another common hazard after a wildfire is unstable trees, known as 'snags' or 'hazard trees,' which can fall and injure homeowners and workers. It is important to assess the stability of all trees before working and driving around them.

Safety Measures

- Always contact a professional to evaluate a tree's stability and to safely remove any suspected hazardous trees from the property and along roadways before conducting cleanup work.
- For more information about potential hazards from tree removal (<https://www.cdc.gov/disasters/chainsaws.html>)

4. Carbon Monoxide

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Wildfire cleanup activities may involve the use of gasoline or diesel powered pumps, generators, and pressure washers. This equipment releases carbon monoxide (CO), a deadly, colorless, odorless gas. It is important that homeowners and workers protect themselves from CO poisoning.

Safety Measures

To avoid the risk of CO poisoning:

- Never bring gas or diesel powered machines indoors.
- Only operate these machines in well-ventilated areas.
- Do not work near exhaust gases (CO poisoning can occur even outdoors near exhaust from engines that generate high concentrations of CO).
- Shut off the equipment immediately and seek medical attention if you experience symptoms of CO poisoning.
- For more information on Carbon Monoxide (<https://www.cdc.gov/niosh/topics/co-comp/>) or Carbon Monoxide Hazards from Small Gasoline Powered Engines (<https://www.cdc.gov/niosh/topics/co/>)

5. Confined Spaces

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A confined space is an area that has limited openings for entry or exit, has limited air flow and is not designed for human occupancy. Examples of confined spaces include septic tanks, storage tanks, utility vaults and wells. These spaces may contain toxic gases, may not have oxygen, or may be explosive. In many cases, these hazards are not easily recognized without proper training and equipment.

Safety Measures

- Never enter a confined space without proper training and equipment, not even to rescue a fellow worker. Contact the local fire department for help.
- To learn more on Confined Spaces (<https://www.cdc.gov/niosh/topics/confinedspace/>).

6. Fatigue and Stress

A homeowner may experience emotional stress and mental and physical fatigue from cleanup and from loss of personal property or valuables. Fatigue and stress may increase the risk of injury and illness.

Safety Measures

After a fire, homeowners or other workers may need to:

- Seek emotional support from family members, neighbors, and local mental health care workers to help prevent more serious stress-related problems.
- Set priorities for cleanup tasks and pace work over days or weeks to avoid physical exhaustion.
- Rest and take frequent breaks to avoid exhaustion.
- Begin a normal sleep and eating schedule as quickly as possible.
- Take advantage of disaster relief programs and services in the community.
- Understand physical and mental limitations.
- For more information on Traumatic Incident Stress: Information For Emergency Response Workers (<https://www.cdc.gov/niosh/mining/UserFiles/works/pdfs/2002-107.pdf>) and Stress at Work (<https://www.cdc.gov/niosh/topics/stress/>)

7. Electrical Dangers

One common danger after a fire is a downed/damaged power pole with potentially energized power lines laying on the ground or hanging from the pole. Any type of work with power lines or other electrical sources must only be conducted by trained professionals, such as electricians and utility workers. If a potential electrical danger or a downed power line is identified, avoid all electrical hazards by stopping work and immediately notifying the local utility company.

Safety Measures

When working near power lines, it is important to follow these steps to prevent electrical injuries:

- Do not work or enter any area with any potential for electrocution from a power line or other electrical hazards.
- Treat all power lines and cables as energized until proven otherwise.
- When the power is off, never restore power until a professional inspects and ensures the integrity of the electrical system.
- Do not use electrical equipment that has been exposed to heat from a fire until checked by an electrician.
- Unless power is off, never enter flooded areas or touch electrical equipment if the ground is wet.
- Use extreme caution when equipment is moved near overhead power lines. For example, contact between metal ladders and overhead power lines can cause serious and often fatal injuries.
- Do not stand or work in areas with thick smoke. Smoke hides electrical lines and equipment.
- For more information on Electrical Safety: (<https://www.cdc.gov/niosh/topics/electrical/>).

Many homes and other structures may contain or store hazardous materials and chemicals. Some common materials include asbestos, lead, pesticides, propane, and gasoline. These materials may cause health effects, may be explosive, or may react with other chemicals. Before beginning cleanup activities, contact a professional who is familiar with hazardous materials to determine the different types of hazards that are present and how to safely clean up and dispose of them in accordance with local and state laws.

Safety Measures

To reduce the chance of exposure to hazardous and other dangerous materials:

- Be cautious of chemicals, propane tanks, and other dangerous materials.
- Wear protective clothing and gear when handling hazardous materials.
- If exposed to hazardous materials, wash the affected area (e.g., skin, eyes) and contact your local poison control center or the American Association of Poison Control Centers at 1 (800) 222-1222. Seek medical care immediately if the exposure is severe or you experience symptoms.
- Homes built before 1980 may contain asbestos and lead. Contact your county health department to learn about local laws and regulations. Because disturbing lead and asbestos may result in serious health consequences, it is recommended that only trained professionals test for and clean up materials that contain lead or asbestos.
- Fires may also damage tanks, drums, pipes, or equipment that may contain hazardous materials, such as pesticides, gasoline, or propane. Before opening or removing containers that may contain hazardous materials, contact the local fire department or a hazardous materials team to help assess and remove hazardous waste.
- To learn more about chemical safety see the NIOSH Pocket Guide to Chemical Hazards (<https://www.cdc.gov/niosh/npg/>) and Chemical Safety page (<https://www.cdc.gov/niosh/topics/chemical-safety/default.html>).

9. Hot Environments

While working in hot weather, homeowners and cleanup workers could be at risk for heat-related illnesses, such as heat stress, heat rash, heat cramps, and heatstroke. It is important to be aware of the symptoms of heat-related illness, how the illness can affect health and safety, and how it can be prevented.

Safety Measures

To reduce the potential for heat-related illnesses, it is important to follow some basic work practices, such as:

- Wearing lightweight, light-colored, loose-fitting clothes,
- If possible, blocking out direct sun or other heat sources,
- Taking frequent breaks in cool, dry areas,
- Acclimatizing before working (getting used to weather conditions),
- Working during the cooler hours of the day when possible, and
- Maintaining hydration by drinking plenty of water and other fluids.

! If a homeowner or worker displays any signs of heat related illness, it is important to immediately go to a cool, shaded place, sit or lie down, and drink water. If possible, cool water may be poured over the homeowner's or worker's head and body. Seek medical attention immediately if the symptoms do not subside.

- To learn more about Heat Stress (<https://www.cdc.gov/niosh/topics/heatstress/>).

10. Musculoskeletal Injuries

Homeowners and workers who may be involved in cleanup activities are at risk for developing stress, strain, and potential musculoskeletal injuries, which are injuries or disorders of the muscles, nerves, tendons, joints, cartilage, or spinal discs. These common injuries can occur when moving debris and materials, using hand-held equipment (e.g., chainsaws) due to repetition, force, vibration, or awkward postures.

Safety Measures

Some useful tips to prevent these injuries:

- Use teams of two or more to move bulky objects.
- Take breaks when conducting repetitive work, especially if experiencing fatigue.
- Avoid working in unusual or constricting postures.
- Use correct tools and equipment for the job and use them properly.
- Do not lift material weighing 50 pounds or more and use automated lifting devices for heavier objects.
- Be sure the area is clear of slip, trip and fall hazards.
- To learn more about Ergonomics and Musculoskeletal Disorders (<https://www.cdc.gov/niosh/topics/ergonomics/>).

11. Wildfire Smoke and Ash

Smoke from a wildfire can pose health risks. Older adults, young children or individuals with underlying heart or lung disease are the most likely to be affected by inhaling wildfire smoke. Healthy individuals may also experience short-term respiratory irritation symptoms, such as burning eyes and runny nose. If there is smoke in the area, homeowners and cleanup workers who are sensitive to smoke should consider leaving the area until the smoke clears.

Ash from wildfires can be deposited on indoor and outdoor surfaces in areas around the fire and can be irritating to the skin, nose and throat, and may cause coughing.

Safety Measures

To minimize the health effects that may occur due to exposure to smoke and ash:

- Always wear proper personal protective equipment (long sleeve shirts, pants, gloves and safety glasses) when working around ash. If you do get ash on your skin, wash it off as soon as possible.
- Do not use leaf blowers or take other actions (e.g., dry sweeping) that will put ash into the air. Shop vacuums and other common vacuum cleaners do not filter out small particles, but rather blow the particles out the exhaust into the air. To clean up ash, use vacuums equipped with High-Efficiency Particulate Air (HEPA) filters.
- Do not consume any food, beverages, or medication that has been exposed to burn debris or ash.
- Well-fitting respirators may provide some protection during cleanup. Please visit NIOSH's Respirator Trusted-Source Information web site at: http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/RespSource.html.
- If the presence of asbestos, lead, CO or other hazardous material is suspected, do not disturb the area. Dust masks or filtering facepiece respirators do not protect against asbestos or gases such as CO.
- Avoid burned items that may contain hazardous chemicals, such as cleaning products, paint and solvent containers.
- Avoid ash from wooden decks, fences, and retaining walls pressure treated with chromated copper arsenate (CCA) as it may contain lethal amounts of arsenic.

12. Working With and Around Heavy Equipment

Do not operate heavy equipment, such as bulldozers, backhoes, and tractors, unless you are properly trained. Serious and fatal injuries can occur when equipment is used improperly. To learn more about motor vehicle safety, visit NIOSH's webpages: Motor Vehicle Safety (<https://www.cdc.gov/niosh/motorvehicle/default.html>) and Fatality Assessment Control and Evaluation (<https://www.cdc.gov/niosh/face/default.html>).

13. First Aid

First aid, even for minor cuts and burns, is extremely important as workers are exposed to smoke and burned materials. For more information, please visit NIOSH's webpage: NIOSH's First Aid Procedures (<https://www.cdc.gov/niosh/npg/firstaid.html>).