

2013 Safety and Hazards

Hazards

Young workers get injured or sick on the job for many reasons, including:

- Unsafe equipment
- Inadequate safety training
- Inadequate supervision
- Dangerous work that is illegal or inappropriate for youth under 18
- Pressure to work faster
- Stressful conditions

Workplace hazards associated with specific jobs are another major cause of injuries and illnesses. Employers must work to reduce or minimize hazards in the workplace and train employees how to work safely on the job.



UNITED STATES
DEPARTMENT OF LABOR

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Water Rest Shade



Campaign to Prevent Heat Illness in Outdoor Workers



Heat-related Illnesses and First Aid



Prevention



Industry-Specific Resources



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Many people are exposed to heat on some jobs, outdoors or in hot indoor environments. Operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities have a high potential for causing heat-related illness. Workplaces with these conditions may

include iron and steel foundries, nonferrous foundries, brick-firing and ceramic plants, glass products facilities, rubber products factories, electrical utilities (particularly boiler rooms), bakeries, confectioneries, commercial kitchens, laundries, food canneries, chemical plants, mining sites, smelters, and steam tunnels.

Outdoor operations conducted in hot weather and direct sun, such as farm work, construction, oil and gas well operations, asbestos removal, landscaping, emergency response operations, and hazardous waste site activities, also increase the risk of heat-related illness in exposed workers.

Every year, thousands of workers become sick from occupational heat exposure, and [some even die](#). **These illnesses and deaths are preventable.**

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Working Outdoors?

[See OSHA's Campaign to Prevent Heat Illness in Outdoor Workers](#)

Why is heat a hazard to workers?

When a person works in a hot environment, the body must get rid of excess heat to maintain a stable internal temperature. It does this mainly through circulating blood to the skin and through sweating.



When the air temperature is close to or warmer than normal body temperature, cooling of the body becomes more difficult. Blood circulated to the skin cannot lose its heat. Sweating then becomes the main way the body cools off. But sweating is effective only if the humidity level is low enough to


allow evaporation, and if the fluids and salts that are lost are adequately replaced.

If the body cannot get rid of excess heat, it will store it. When this happens, the body's core temperature rises and the heart rate increases. As the body continues to store heat, the person begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink. The next stage is most often fainting and even death if the person is not cooled down.

Excessive exposure to heat can cause a range of [heat-related illnesses](#), from heat rash and heat cramps to heat exhaustion and heat stroke. Heat stroke can result in death and requires **immediate medical attention**.

Exposure to heat can also increase the risk of injuries because of sweaty palms, fogged-up safety glasses, dizziness, and burns from hot surfaces or steam.

> > **Go to [Heat-Related Illnesses and First Aid](#)**


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Who could be affected by heat?

Workers exposed to hot indoor environments or hot and humid conditions outdoors are at risk of heat-related illness, especially those doing heavy work tasks or using bulky or non-breathable protective clothing and equipment. Some workers might be at greater risk than others if they have not built up a tolerance to hot conditions, or if they have certain health conditions. The table below shows some environmental and job-specific factors that increase the risk of heat-related illness.

Factors That Put Workers at Greater Risk	
Environmental	High temperature and humidity Radiant heat sources Contact with hot objects Direct sun exposure (with no shade) Limited air movement (no breeze, wind or ventilation)
Job-Specific	Physical exertion Use of bulky or non-breathable protective clothing and equipment

Workers who are suddenly exposed to working in a hot environment face additional and generally avoidable hazards to their safety and health. New workers and those returning from time away are especially vulnerable. That's why it is important to prepare for the heat: educate workers about the dangers of heat, acclimatize workers, gradually increase the workload or allow more frequent breaks to help new workers and those returning to a job after time away build up a tolerance for hot conditions.

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Heat Index	Risk Level	Protective Measures
Less than	Lower	Basic heat safety

91°F	(Caution)	and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

How do I know if it's too hot?

- The temperature rises
- Humidity increases
- The sun gets stronger
- There is no air movement
- No controls are in place to reduce the impacts of equipment that radiates heat
- Protective clothing or gear is worn
- Work is strenuous

The heat index, which takes both temperature and humidity into account, is a useful tool for outdoor workers and employers (see [Using the Heat Index: A Guide for Employers](#)).

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How can heat-related illness be prevented?




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Heat-related illnesses can be prevented. Important ways to reduce heat exposure and the risk of heat-related illness include [engineering controls](#), such as air conditioning and ventilation, that make the work environment cooler, and [work practices](#) such as work/rest cycles, drinking water often, and providing an opportunity for workers to build up a level of tolerance to working in the heat. Employers should include these prevention steps in worksite [training](#) and plans. Also, it's important to know and look out for the [symptoms](#) of heat-related illness in yourself and others during hot weather. Plan for an emergency and know what to do — **acting quickly can save lives!**

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How can OSHA Help?

OSHA has developed this webpage to provide workers and employers useful, up-to-date information on occupational heat exposure. For additional information on occupational heat exposure, see the pages [above](#) or for other valuable worker protection information, such as Workers' Rights, Employer Responsibilities and other services OSHA offers, read [OSHA's Workers](#) page.

OSHA provides a free On-site Consultation for small businesses with fewer than 250 workers at a site (and no more than 500 employees nationwide). On-site consultation services are separate from enforcement and do not result in penalties or citations. To locate the OSHA Consultation Office nearest you, visit [OSHA's website](#) or call 1-800-321-6742.

Many states operate their own OSHA-approved safety and health program. For further information, please visit [OSHA's State Occupational Safety and Health Plans page](#).

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