

Heat Illness Prevention in Indoor Workplaces

Information for Employers



California Code of Regulations, title 8, section **3396** establishes required safety measures for indoor places of employment to prevent employee exposure to risk of heat illness. The standard applies to most workplaces where the indoor temperature reaches 82°F. This regulation requires employers to provide access to drinking water and cool-down areas, closely observe employees during acclimatization, train employees, and provide timely emergency aid.

This fact sheet provides an overview—not all the requirements—of section 3396. Please read the regulation for full requirements.

Why should employers be concerned about indoor heat illness prevention?

Many employees in indoor settings such as factories, food trucks, kitchens, warehouses, and foundries work in hot environments and are often unable to take advantage of heat illness prevention policies that apply to their counterparts working in outdoor places of employment.

Heat illness is a serious medical condition resulting from the body's inability to cope with a particular heat load. Types of heat illness include heat cramps, heat exhaustion, heat syncope, and heat stroke, which can lead to death.

Signs of heat stress

The longer a person goes without assistance in excessive heat, the more likely they are to become seriously ill. Some symptoms of heat illness include the following:

- Headache
- Fatigue
- Dizziness
- Confusion
- Muscle pain and spasms
- Elevated heart rate
- Heavy sweating
- Hot/dry skin
- Nausea/vomiting
- Fainting/unconsciousness

Certain medical conditions are risk factors of heat stress and related heat illnesses. Employees with heart disease or high blood pressure and those taking certain medications should take extra precautions with their heat exposure.

Taking steps to prevent heat illness in indoor workplaces not only reduces health risks, but also makes the workplace environment comfortable, which makes it easier for employees to work more efficiently and increases overall productivity.

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What must employers do?

Access to clean drinking water: Employers are required to provide access to potable water that is fresh, suitably cool, and free of charge. It must be located as close as practicable to the work area and cooling area. If an employer does not provide plumbed water, they are required to provide at least one quart per hour per employee per shift. Employers must encourage frequent water consumption.

Cool-down areas and rest periods: Employers must provide access to at least one cool-down area which must be maintained at a temperature below 82°F, blocked from direct sunlight, shielded from other high-radiant heat sources, large enough to accommodate the number of employees on rest breaks, and as close as practicable to the work area. They must allow employees who ask for a cool-down rest period to take one. In addition, employers must encourage employees to take preventative cool-down rest periods and monitor employees taking such rest periods for symptoms of heat-related illness. If symptoms persist, they may not be ordered back to work.

Assessing and measuring heat: Employers must measure the temperature and heat index and record whichever is greater whenever the temperature or heat index reaches 87°F (or temperature reaches 82°F for employees working in clothing that restricts heat removal or high radiant heat areas). This is an important step to ensure that employers know when to implement control measures to keep employees safe.

Emergency response procedures: Employers must provide first aid or emergency response to any workers showing heat illness signs or symptoms, including contacting emergency medical services.

Acclimatization: Employers must closely observe new employees and newly assigned employees working in hot areas during a 14-day acclimatization period, as well as all employees working during a heat wave where no effective engineering controls are in use.

“Heat wave” means any day in which the predicted high outdoor temperature for the day will be at least 80°F and at least 10°F greater than the average high daily outdoor temperature for the preceding five days.

“Acclimatization” means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within 4 to 14 days of regular work for at least 2 hours per day in the heat.



Training: Employers need to provide training to both employees and supervisors. Required topics include:

- Environmental and personal risk factors for heat illness.
- The employer’s procedures for complying with the regulation.
- The importance of frequent water consumption.
- The importance and methods of acclimatization.
- Signs and symptoms of the different types of heat illness.
- The importance of employees immediately reporting to the employer signs and symptoms of heat illness in themselves or co-workers.
- The employer’s procedures for responding to signs and symptoms of heat illness, such as first aid.

- Emergency response procedures, including contacting emergency medical services with clear directions to the worksite.
- Before supervising employees, the supervisor must be trained in all the information listed above and how to monitor and respond to hot weather reports, if the work area is affected by outdoor temperatures.

Controls: Employers are required to implement engineering and administrative controls and personal heat-protective equipment to minimize the risk of heat illness when:

- Temperature or heat index is 87°F or higher.
- Temperature is 82°F or higher and employees are either:
 - Wearing clothing that restricts heat removal.
 - Working in an area with high radiant heat.

More information on controls is given in the “Controls” section below.

Written plan: Establish, implement, and maintain an effective written Indoor Heat Illness Prevention Plan that includes procedures for providing drinking water, cool-down areas, preventative rest periods, close observation during acclimatization, assessment and measurement of heat, training, timely emergency response, and feasible control measures.

Controls

Employers must start with feasible engineering controls, then add administrative controls if those are not enough to reduce the temperature and heat index to below 87°F (or temperature to below 82°F for employees working in clothing that restricts heat removal or high radiant heat areas). Employers have options when implementing control measures to protect their workers against heat illness and to comply with the standard:

Engineering controls: These are controls that remove or reduce heat or create a barrier between the employee and the heat source. Examples include:



- Increased natural ventilation, such as open windows and doors when the outdoor temperature or heat index is lower than the indoor temperature and heat index.
- Cooling fans or air conditioning.
- Local exhaust ventilation at points of high heat production or moisture (such as exhaust hoods in laundry rooms).
- Reflective shields to block or reduce radiant heat.
- Insulating or isolating heat sources from employees, or isolating employees from heat sources.
- Elimination of steam leaks.
- Cooled seats or benches.
- Evaporative coolers.

Administrative controls: These controls are methods that limit exposure to heat by adjusting work procedures, practices, or schedules. Administrative controls should be used once all feasible engineering controls have been implemented.

- Modify work schedules and activities to times of the day when the temperature is cooler or schedule shorter shifts, especially during heat waves. For newly hired workers and unacclimatized existing workers, gradually increase shift length over the first one to two weeks.

- Require mandatory rest breaks in a cooler environment, such as a shady location or an air-conditioned building. The duration of the rest breaks should increase as heat stress rises.
- Schedule work at cooler periods or times of day, such as early morning or late afternoon.
- Rotate job functions among workers to help minimize exertion and heat exposure. If workers must be in proximity to heat sources, mark them clearly, so they are aware of the hazards.
- Require employees to work in pairs or groups during extreme heat so they can monitor each other for signs of heat illness.

Personal heat-protective equipment: If feasible engineering controls do not decrease the temperature enough and administrative controls do not minimize the risk of heat illness, special cooling devices that the employees wear can protect them in hot environments:

- Water- or air-cooled garments, cooling vests, jackets, and neck wraps. The cooling source can be reusable ice packs or cooled air connected to an external source.
- Supplied-air personal cooling systems.
- Insulated suits.
- Heat-reflective clothing.
- Infrared reflecting face shields.

Workers should be aware that the use of certain personal protective equipment for other hazards, such as respirators, impermeable clothing, and head coverings, can increase the risk of heat-related illness.

Resources

Cal/OSHA

- Title 8, Section **3395**, Heat Illness Prevention in Outdoor Places of Employment
- Title 8, Section **3396**, Heat Illness Prevention in Indoor Places of Employment

Publications

- **Heat Illness**
- **Cal/OSHA Heat Illness Prevention**

Fed OSHA

- **Overview: Working in Outdoor and Indoor Heat Environments**
- **Prevention: Engineering Controls, Work Practices, and Personal Protective Equipment**

NIOSH

- **Heat Stress**
- **Occupational Exposure to Heat and Hot Environments**

June 2024



This document is available with active links at www.dir.ca.gov/dosh/dosh_publications
 For assistance regarding this subject matter, employers may contact
Cal/OSHA Consultation Services at 1-800-963-9424 or InfoCons@dir.ca.gov
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