

CHAPTER 7

HEAT ILLNESS PREVENTION PLAN

HEAT ILLNESS PREVENTION PLAN
(T8 CCR Section 3395 and T8 CCR Section 3203)

I. PURPOSE

To provide a safe and healthful working environment and protect Shasta County employees who are outdoors and/or indoor workers that may be exposed to temperature extremes, radiant heat, humidity, or limited air movement while working from heat related illnesses.

II. POLICY

As temperatures rise, so does the risk of heat illness. Heat illness, a medical condition that results from the body's inability to cope with heat and to cool itself as needed, can be deadly. This risk is generally the highest for people who work outdoors. Remember that temperatures reported in weather forecasts are SHADE temperatures. Working in the direct sun, on hot surfaces or in humidity over 20% can expose workers to temperatures 10 or 15 degrees higher than those quoted.

A. Definitions

1. "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 four to fourteen days of regular work for at least two hours per day in the heat.
2. "Heat Illness" means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
3. "Environmental risk factors for heat illness" means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.
4. "Landscaping" means providing landscape care and maintenance services and/or installing trees, shrubs, plants, lawns, or gardens, or providing these services in conjunction with the design of landscape plans and/or the construction (i.e., installation) of walkways, retaining walls, decks, fences, ponds, and similar structures, except for employment by an employer who operates a fixed establishment where the work is to be performed and where drinking water is plumbed.

5. “Personal risk factors for heat illness” means factors such as an individual’s age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body’s water retention or other physiological responses to heat.
6. “Shade” means blockage of direct sunlight. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning operating. Shade may be provided by any natural or artificial means which does not expose employees to unsafe or unhealthy conditions and does not deter or discourage access or use.
7. “Temperature” means the dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer to measure the outdoor temperature in an area where there is no shade. While the temperature measurement must be taken in an area with full sunlight, the bulb or sensor of the thermometer should be shielded while taking the measurement, e.g., with the hand or some other object, from direct contact by sunlight.
8. Provision of water. Employees shall have access to potable drinking water. Where drinking water is not plumbed or otherwise continuously supplied, potable drinking water will be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour.

III. **HEAT ILLNESS PREVENTION**

A. **Five Basic Steps for Outdoor Workers**

The best defense against heat-related illnesses and fatalities is prevention. The Heat Illness Prevention Standard, Title 8, California Code of Regulations, Section 3395, adopted on June 15, 2005, requires all employers with outdoor worksites to take 5 basic steps to prevent heat illness:

1. Provide heat illness prevention training to all employees, including supervisors.
2. Provide enough fresh water so that each employee can drink at least 1 quart per hour and encourage them to do so.

3. Provide access to shade for at least 5 minutes of rest when an employee believes he or she needs a preventative recovery period. They should not wait until they feel sick to do so. Such access to shade shall be permitted at all times.
4. Develop and implement department specific written procedures for complying with the standard.
5. Be prepared for emergencies.

B. Heat Illness Prevention (Indoor Working Environments) Ⓢ

Departments with employees (workers) near sources of heat or inside buildings with limited cooling capabilities must ensure that their department specific Injury and Illness Prevention Program is effective and in writing, and identifies work areas with risk of heat illness, and that appropriate corrective measures and training have been implemented to protect workers. Title 8 Section 3203 directs employers to address all health or safety hazards within their worksite including heat illness. Other regulations may apply including Title 8 Section 3363 Water Supply, and Title 8 Section 3400 Medical Services and First Aid.

1. **Frequent Drinking of Water:** Water is the key preventive measure against heat illness. Departments need to facilitate and encourage the frequent drinking of water, and to be on the lookout for work situations that interfere with access to water, especially during times of high heat!
2. **Resting in Cooler Areas:** Rest breaks provide time for cooling and the opportunity to drink water. Workers must have access to rest breaks in cooled or air conditioned areas and away from the sources of heat, particularly during times of high heat!
3. **Acclimatization and Weather Monitoring:** Acclimatization is a gradual and temporary adjustment of the body to work in the heat. People need several days to adjust when working conditions are significantly hotter than they are used to. The weather is another significant factor and requires monitoring by employees, employers and supervisors. Institute additional water and rest breaks during heat waves. Indoor workers face a higher risk of heat illness during periods of high temperatures, if they are working in a building that is not temperature controlled.
4. **Being Prepared for Emergencies:** Department and worksite specific written procedures must include steps to be followed in an emergency, which will ensure a rapid effective response, including instructing workers on how to reach 911 despite possible language barriers, how to give instructions to find the worksite and how to administer the first aid while an ambulance is in route.
5. **Employee and Supervisor Training:** All workers and supervisors need to know about the importance of frequent drinking of water and resting in cooled areas, the

signs and symptoms of heat illness, how to respond and who to report to when someone feels sick and may need to go to the hospital.

IV. Heat Illness Types and Symptoms

A. Heat Stroke

Heat stroke is the most serious health problem for workers in hot environments. Heat stroke is caused by the failure of the body's internal mechanism to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include: mental confusion, delirium, loss of consciousness, convulsions or coma; a body temperature of 106°F or higher; and hot dry skin that may be red, mottled, or bluish. Victims of heat stroke may die if not treated promptly.

B. Heat Stroke Treatment:

- **Call 911 immediately.**
- Move the victim to a cool, shaded area and lay the person on his or her back.
- Loosen and remove any heavy clothing.
- Have the person drink a cup of cool water every 15 minutes (if conscious).
- Cool the body by fanning or spraying with a cool water mist, damp cloths or a wet sheet.
- Place ice packs under the armpits and in the groin.
- Do not leave the victim alone.

C. Heat Exhaustion

Heat exhaustion results from loss of fluid through sweating when a worker has failed to drink enough fluids or take in enough electrolytes or both. Symptoms include headaches; dizziness; weakness; mood changes; upset stomach; vomiting; fainting; pale, clammy skin.

D. Heat Exhaustion Treatment:

- Act immediately. If not treated, heat exhaustion can quickly become heat stroke.
- Move the victim to a cool, shaded area. Do not leave the victim alone.
- If symptoms include dizziness or lightheadedness, lay the victim on his or her back and raise the feet 6 to 8 inches. If symptoms include nausea, lay the victim on his or her side.
- Loosen or remove heavy clothing.
- Have the victim drink a cup of cool water every 15 minutes.
- Cool the victim by fanning or spraying
- If there are no signs of recovery after 15 minutes, call 911.

E. Heat Cramps

Heat cramps are painful spasms of the muscles - caused when workers drink large quantities of water but fail to replace their bodies' salt loss. Tired muscles - those used for performing the work - are usually the ones most susceptible to cramps.

F. Heat Syncope (fainting)

Heat syncope may be a problem for the worker not acclimated to a hot environment and who simply stands still in the heat.

G. Heat Rash

Heat Rash may occur in hot and humid environments where sweat is not easily removed from the surface of the skin by evaporation. When extensive or complicated by infection, heat rash can be so uncomfortable that it inhibits sleep and impedes a worker's performance or even results in temporary or permanent disability.

V. **TRAINING**

Before employees are allowed to work outdoors and begin work that should reasonably be anticipated to result in exposure to the risk of heat illness, supervisory and non-supervisory employees shall receive heat illness prevention training and an annual refresher.

A Cal/OSHA heat illness study revealed that supervisor training made a significant difference in the outcome of heat illness cases: victims whose supervisors were not trained on heat illness prevention were twice as likely to die as victims whose supervisors had received training.

Employee training must include the following information:

- The Environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment.
- Department specific heat illness prevention plan and procedures.
- The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties.
- The importance of acclimatization (of allowing the body to adjust gradually to the work in high heat).
- The different types of heat illness and the common signs and symptoms of heat illness.

- The importance to employees of immediately reporting to the employer directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers.
- Department specific procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary.
- Department specific procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider.
- The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders. These procedures shall include designating a person to be available to ensure that emergency procedures are invoked when appropriate.

Supervisor training:

- The information provided in Section V. above.
- The Department specific procedures the supervisor is to follow to implement the applicable provisions in this safety policy (Heat Illness Prevention Plan).
- The Department specific procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.
- How to monitor weather reports and how to respond to hot weather advisories.

VI. ADJUSTING TO THE HEAT

One training component for employees on heat illness prevention is the importance of acclimatization, or adjusting to physical activity in hot weather. The body needs time to adapt to increased heat and humidity, especially when one is engaged in heavy physical exertion.

- (1) All employees shall be closely observed by a supervisor or designee during a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

- (2) An employee who has been newly assigned to a high heat area shall be closely observed by a supervisor or designee for the first 14 days of the employee's employment.

On very hot days, good strategies include increasing both water intake and the number of rest breaks, and using a “buddy system” so that workers and supervisors can monitor each other. Also, employees should be reminded of the cooling benefits of wearing loose fitting, light-colored clothing and a wide-brimmed hat, when feasible.

VII. PROVISION OF SHADE AND HEAT ILLNESS RECOVERY PERIODS

Recent safety and health data shows that all the surviving victims of heat illness had access to some shade during work periods, lunch, or at breaks. Under Cal/OSHA’s new standard, an employee working outdoors who wants to cool off must be provided with shade for 5 minutes at a time. Shade for heat illness recovery periods must be accessible to employees at all times.

According to the new standard, shade means blockage of direct sunlight. Shade is sufficient when objects do not cast a shadow in the shaded area and there is sufficient space for the employee to be comfortable. Shade is not adequate when the temperature in the shaded area prevents cooling. The cab of a parked vehicle is only acceptable as shade if the air conditioning system is operating, as the heat in a parked vehicle can quickly exceed the ambient temperature. Also, tractors and other machinery do not qualify as sources of shade and have the potential to create an even greater hazard.

Employees should be provided access to shade as follows:

- (1) Shade shall be present when the temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit, the employer shall have and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling. The amount of shade present shall be at least enough to accommodate the number of employees on recovery or rest periods, so they can sit in a normal posture fully in the shade without having to be in physical contact with each other. The shade area shall be located as close as practicable to the areas where employees are working. Subject to the same specifications, the amount of shade present during meal periods shall be at least enough to accommodate the number of employees on the meal period who remain onsite.
- (2) Shade must still be available when the temperature does not exceed 80 degrees Fahrenheit. When the outdoor temperature in the work area does not exceed 80 degrees Fahrenheit employers shall either provide shade as per subsection (D)(1) or provide timely access to shade upon an employee's request.

- (3) Employees shall be allowed and encouraged to take a preventative cool-down rest in the shade when they feel the need to do so to protect themselves from overheating. Such access to shade shall be permitted at all times. An individual employee who takes a preventative cool-down rest shall be monitored and asked if he or she is experiencing symptoms of heat illness; shall be encouraged to remain in the shade; and shall not be ordered back to work until any signs or symptoms of heat illness have abated, but not less than 5 minutes in addition to the time needed to access the shade.

VIII. PROVISION OF POTABLE WATER

Title 8 CCR Section 3395 requires employers to provide employees, working outdoors, one quart of potable, fresh and cool water per person, per hour.

Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable including but not limited to the requirements that it be fresh, pure, suitably cool, and provided free of charge. The water shall be located as close as practicable to the areas where employees are working. Where drinking water is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift.

Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water shall be encouraged, and supervisors should emphasize the importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties

IX. HIGH HEAT PROCEDURES

As a minimum, the following high-heat procedures shall be implemented when the temperature equals or exceeds 95° Fahrenheit:

- (1) Ensuring that effective communication by voice, observation, radio or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
- (2) Observing employees for alertness and signs or symptoms of heat illness.

- (3) Reminding employees at the beginning and throughout the work shift to drink plenty of water.
- (4) Pre-shift meetings before the commencement of work to review the high heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary.

X. EMERGENCY PROCEDURES

Outdoor workers will usually have at least one person who is trained in First Aid. If an employee exhibits signs or reports symptoms of heat illness while taking a preventative cool-down rest, the employer shall provide appropriate first aid or emergency response.

If emergency services are needed, call 911 to obtain those services. If no phone is available, or if there is no signal on a cellular phone, or there is no two-way radio system provided to contact the crew supervisor to request emergency assistance, send someone or go to the nearest location where 911 services can be reached.

If the outdoor worker is working in an inaccessible area, the victim shall be transported to a location where they can be reached by the emergency services, and the person initiating the call shall notify the emergency responders of the pickup location. It is important that emergency personnel know where the victim is located, and precise instructions in how to reach the victim's location shall be provided to the emergency personnel. These instructions shall include the specific street address, closest cross streets and/or landmarks to identify the location.

Ensuring that effective communication by voice, observation, radio or electronic means is maintained so that employees at the work site can contact a supervisor or emergency medical services when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable. If an electronic device will not furnish reliable communication in the work area, employer will ensure a means of summoning emergency medical services. Responding to signs and symptoms of possible heat illness, including but not limited to first aid measures and how emergency medical services will be provided. If a supervisor observes, or any employee reports, any signs or symptoms of heat illness in any employee, the supervisor shall take immediate action commensurate with the severity of the illness. If the signs or symptoms are indicators of severe heat illness (such as, but not limited to, decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior or convulsions), the employer must implement emergency response procedures. An employee exhibiting signs or symptoms of heat illness shall be monitored and shall not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services in accordance with the employer's procedures.