

## Heat Illness Prevention



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## Disclaimer

This is not meant to be either a substitute for or a legal interpretation of the occupational safety and health regulations. Users are cautioned to refer directly to Title 8 of the California code of Regulations and the Labor Code for detailed information regarding the regulation's scope, specifications, and exceptions and for other requirements that may be applicable to their operations.



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## Course Goal

- To identify and evaluate workplace hazards and take the steps necessary to address them.
- Increase awareness and commitment to safety and health at the work site.
- Review heat illness prevention and regulatory requirements.



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
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## Don't Take the Risk



Heat kills... your business!

- ❑ 16 jobsites were shut down in 2009 for imminent hazards due to heat
- ❑ Nearly \$2 million in penalties and 1158 citations issued in 2009
- ❑ District Attorneys may review these cases for criminal activity
- ❑ Bad press/media attention
- ❑ 41 confirmed heat illnesses and 1 confirmed heat fatality in 2009


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## Major Steps for Prevention according to Cal/OSHA



- ❑ Written Policy
- ❑ Acclimatization
- ❑ Training (Employee & Supervisor)
- ❑ Accessible to Water and Shade
- ❑ Providing shade above 85 degree F
- ❑ Emergency Preparedness
- ❑ Cal/OSHA recommends that employers use common sense and creativity when it comes to prevention! ([www.99calor.com](http://www.99calor.com))


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## Heat Illness Prevention



CCR, Title 8, Section 3395


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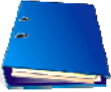
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## Title 8 Section 3395



Heat Illness Prevention Elements Include:

- Access to Water
- Access to Shade
- Written Procedures incl. Emergency Response
- Training



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## Five Most Violations (OSHA)



1. No written program
2. Employee Training
3. No water provided
4. No shade provided
5. Supervisor Training



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## Heat Illness Prevention



- ❑ California law requires employers to identify and evaluate workplace hazards and take the steps necessary to address them
- ❑ Standard Applies in all outdoor places of employment at those times when the environmental risk factors for heat illness are present



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## Access to Water

Access to sufficient amounts of cool potable drinking water shall be available at all times, with at least one quart per employee per hour for the entire shift.

- Provided at no cost to the workers





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## Effective Replenishment Procedures

- Designate a person(s) to periodically check the level of the water containers
- Specify how often the containers will be checked
- Ensure that the water is suitably cool





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## Encourage the Frequent Drinking of Water!



Remind workers not to wait until they are thirsty!




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## When There is No Access to Shade



**SERIOUS HAZARD:** When the outdoor temperature in the work area exceed 85 degrees F, and no shade is present. **YOU RISK A SERIOUS CITATION!**

**IMMINENT HAZARD:** When the outdoor temperature in the work area exceed 90 degrees F, and no shade is present. **YOU RISK GETTING SHUT DOWN (OPU)!**

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## Access to Shade



Locate the shade structure as close as practicable to the areas where employees are working.

Have and maintain one or more areas with shade. Permit access to shade at all times.

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## Encourage Employees to Use Shade



Encourage employees to take a cool-down rest in the shade, for a period of no less than 5 minutes at a time.

"Rule of Thumb": the amount of shade present should be at least enough to accommodate 25 percent of the employees on the shift at any time.

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## If Temperature is Below 85 °F

When the temperature does not exceed 85 degrees F, provide shade or timely access to shade upon request.



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## Does the shade structure introduce a hazard?



In situations where the employer can demonstrate that it is not safe or feasible to provide shade, an employer can utilize established procedures for providing shade upon request or, for non-agricultural employers, alternative cooling measures that provide equivalent protection.

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## Written Procedures



- As long as they are effective, your Heat Illness Procedures can be integrated into the IIPP
- Maintain the procedures on site or close to the site, so that it can be made available to representatives of Cal/OSHA upon request.

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## Written Procedures

Detail how your company will:

- Provide access to water & shade
- Monitor the weather
- Institute high heat procedures and address lack of acclimatization
- Train all employees and supervisors
- Respond to heat illnesses without delay, provide first aid and emergency services.
- Provide clear and precise directions to the worksite.



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## Ensure Access to Water & Shade

- Designate a person to ensure that sufficient quantity of water is provided and shade is open and set in place
- Specify that the water and shade be located as close as possible to the workers
- Spell out how often refills of water containers will take place
- Determine how workers will be encouraged to frequently drink water and use shade



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## Monitor the Weather

<http://www.nws.noaa.gov/>

- Instruct supervisors to track the weather of the job site [by monitoring predicted temperature highs and periodically using a thermometer.]
- Determine how weather information will be used to modify work schedule, increase number of water and rest breaks or cease work early if necessary



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
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## High Heat Procedures



When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, make absolutely sure you:

- Ensure effective communication (by voice, observation or electronic means)
- Observe employees for alertness and signs and symptoms of heat illness
- Give more frequent reminders to drink plenty of water
- Closely supervise new employees, and all workers during a heat wave


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## Address Lack of Acclimatization



As an employer, you are responsible for the working conditions of your employees, so you must act effectively when conditions result in sudden exposure to heat that your workers are not used to.

- Thus, determine how you will:
  - lessen the intensity of the employees' work during a two-week break-in period
  - be extra-vigilant with new employees, and recognize immediately symptoms of possible heat illness


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## Address Lack of Acclimatization

- During a heat wave or sudden heat spike, determine how you will protect your workers from conditions resulting from sudden exposure to heat



**Remember: training for employees and supervisors must include the importance of acclimatization, how it is developed, and how your procedures address it!**





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## Employee & Supervisor Training

Ensure all employees and supervisors:

- ❑ Are trained before working outdoors in the heat
- ❑ Know and follow your company procedures



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## Heat Illness Training

Training should include:

- Why it is important to prevent heat illness
- Procedures for acclimatization
- The need to drink approximately one quart per hour of water to replace fluids.
- The need to take breaks out of the heat
- How to recognize the symptoms of heat illness
- How to contact emergency services, and how to effectively report the work location to 911.


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## Employee Training

**PRIOR TO WORKING OUTDOORS!**

- The environmental and personal risk factors for heat illness
- Your company's heat illness prevention procedures
- Importance of frequent consumption of small quantities of water
- Importance of acclimatization
- Different types of heat illness, common signs and symptoms


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## Employee Training

- Importance of immediately reporting signs or symptoms of heat illness to supervisor
- Procedures for responding to possible heat illness
- Procedures to follow when contacting emergency medical services and if necessary transporting employees
- Procedures that ensure clear and precise directions to the work site will be provided to emergency medical services


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
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## Heat Illness Signs & Symptoms

**Heat Exhaustion**  
Heavy sweating, cramps, rapid pulse, headache, nausea, vomiting

**Heat Stroke**  
Dry, red, hot skin, fainting, high body temperature, disoriented, confused

**NEED MEDICAL HELP**




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## Emergency Response Procedures

To ensure that emergency assistance is provided without delay, plan in advance how you will:

- Immediately respond to symptoms of possible heat illness
- Contact emergency medical service providers
- Provide clear and precise directions to the worksite
- Ensure that emergency procedures are invoked when appropriate


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**What You as a Supervisor Need to Do:**

- ❑ Ensure employees are trained before working outdoors in the heat
- ❑ Ensure workers know and follow company procedures
- ❑ Closely supervise new employees for the first 14 days
- ❑ Monitor the weather at the site
- ❑ Remind workers to drink plenty of water
- ❑ Perform Daily Checklist (See sample)


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**Heat Safety Supervisor's Daily Checklist**

- WATER**
  - Is there plenty of fresh, cool drinking water located as close as possible to the workers?
  - Is there a plan for getting water coolers throughout the day?
- SHADE AND REST**
  - Is a shade structure available at all times (regardless of the weather) for workers to rest and cool down?
  - Is the shade structure up and ready when the weather forecast is 85°F or higher?
  - Do you have a plan in place for checking the weather forecast?
- TRAINING**
  - Have workers been trained to recognize and prevent heat stress BEFORE they start working outdoors?
  - Can workers identify symptoms of heat stress?
  - Is there a specific plan in place to allow workers to get used to the heat?
- EMERGENCY PLAN**
  - Does everyone know how to notify if there is an emergency?
  - Can workers explain their location if they need to call an ambulance?
  - Does everyone know who will provide first aid?
- WORKER REMINDERS**
  - Have workers been reminded to:
    - Drink water frequently?
    - Rest in the shade for at least 2 minutes, as needed?
    - Look out for one another and immediately report any symptoms?

*The work can't get done without them.*




## Heat Safety Daily Checklist

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**What You as a Supervisor Need to Do:**

- ❑ Maintain effective communication with your crew at all times (by voice, observation or electronic means)
- ❑ Observe employees for alertness and signs or symptoms of heat illness
- ❑ Know what procedures to follow when a worker exhibits signs and symptoms of heat illness
- ❑ Respond to heat illness without delay: provide first aid and emergency services


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## Heat Illness Prevention

*More regulations applying to Heat Illness Prevention*

**First Aid and Emergency Response:**

- ❑ Construction 8 CCR 1512
- ❑ Agriculture 8 CCR 3439
- ❑ Logging and sawmills 8 CCR 6251
- ❑ Petroleum drilling and production 8 CCR 6511-6512)
- ❑ Petroleum refining, transportation and handling 8 CCR 6767
- ❑ Tunneling 8 CCR 8420-8421
- ❑ Telecommunications 8 CCR 8602(e)
- ❑ All other places of employment 8 CCR 3400


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## Heat Illness Prevention

*More regulations applying to Heat Illness Prevention*

IIPP -Title 8 CCR 3203

Drinking Water

- ❑ Construction 8 CCR 1524
- ❑ Hand labor in agriculture 8 CCR 3457
- ❑ Mining 8 CCR 6975
- ❑ All other places of employment 8 CCR 3363


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## Heat Illness Prevention



**Heat and Temperature:**

*The following standards apply to heat stress or temperature control in specific operations:*

- ❑ Hazardous waste sites and emergency response 8 CCR 5192
- ❑ Working chambers subjected to compressed air 8 CCR 1230(a)

**Ventilation:**

- ❑ Building ventilation systems are regulated by 8 CCR 5142 and 8 CCR 5143.


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## Recognizing the Hazard

- The Standard Applies in all **outdoor places** of employment at those times when the environmental risk factors for heat illness are present

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## Recognizing the Hazard

*Defining Outdoor Places:*

- An outdoor place of employment is best thought of as one that is not an indoor workplace.
- A workplace with a roof and enclosed sides is generally considered an indoor workplace



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## Recognizing the Hazard

**Examples of outdoor workplaces.**

- Agricultural Fields
- Forests
- Parks
- Equipment and Storage yards
- Outdoor utility installations



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## Recognizing the Hazard

**Examples of outdoor workplaces.**

- ❑ Tarmacs and Roads
- ❑ Construction Sites in which no building shell has been completed
- ❑ Areas of construction sites that are outside of any building shells that may be present


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## Recognizing the Hazard

**Examples of outdoor workplaces.**

- ❑ Outdoor areas adjacent to buildings
- ❑ Loading docks will also be considered outdoor places of employment if an employee spends a significant amount of time working in those areas.


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## Recognizing the Hazard

**Examples of outdoor workplaces.**

- ❑ Sheds, packing sheds, and partial or temporary structures such as tents, lean-tos, and structures with one or more open sides can be either indoor or outdoor workplaces depending on the circumstances


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## Drinking Water Requirements

- The standard requires effective procedures for drinking water replenishment.
- Where unlimited drinking water is not immediately available from a plumbed system






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## Drinking Water Requirements

- Or the employer chooses not to provide the full-shift quantity of drinking water at the beginning of the work shift

***This means that at all times there must be a sufficient quantity of water present and readily accessible.***


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## How much water should you drink?

- Employees should drink one quart or more per hour.
- Approximately 2 gallons per employee or more for an 8 hr shift


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## SHADE

**What is Shade?**  
The blockage of direct sunlight.

**What is considered *sufficient* shade?**

- ❑ Trees as long as they cover the direct sunlight
- ❑ Buildings,
- ❑ Canopies,
- ❑ Lean-tos
- ❑ Air-conditioned automobile


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## What is not considered shade?

- ❑ Underneath mobile equipment, like a tractor
- ❑ Interiors of cars or other vehicles (with no air-condition)
- ❑ Metal storage sheds
- ❑ Out-buildings unless they provide a cooling environment
- ❑ Confined spaces where heat may accumulate


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## ACCLIMATIZATION

**Acclimatization**

- ❑ People need time for their bodies to adjust to working in heat.
- ❑ This “acclimatization” is particularly important for employees returning to work after
  - (1) a prolonged absence,
  - (2) recent illness,
  - (3) recently moving from a cool to a hot climate.


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## Rest Breaks

**Recovery Periods**

- Access to the shade must be permitted at all times
- Employee must be permitted to remain in the shade for a period of at least five minutes.



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## Heat Illness Illness

- Heat Stroke
- Heat Exhaustion
- Heat Cramps
- Fainting
- Transient Heat Fatigue



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## Heat Stroke

- Heat Stroke** is the most serious heat related health problem. It occurs when the body's temperature regulatory system fails and sweating becomes inadequate



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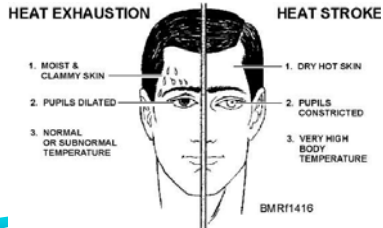
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## Heat Exhaustion

- Heat Exhaustion is caused by the loss of large amounts of body fluid by sweating, sometimes with excessive loss of salt.



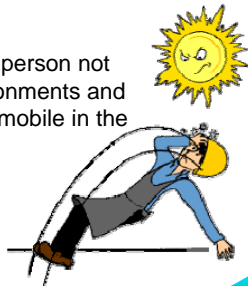
## Heat Cramps

- Heat Cramps are painful spasms of the muscles that occur among those who sweat profusely in heat, drink large quantities of water, but do not adequately replace the body's salt loss.



## Fainting

- Fainting may occur to a person not accustomed to hot environments and who stands erect and immobile in the heat



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## Transient Heat Fatigue

- **Transient Heat Fatigue** is a temporary state of discomfort and mental or psychological strain caused by prolonged heat exposure.



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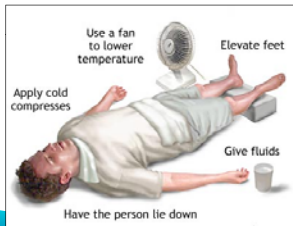
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## Medical Attention

Recognizing the symptoms of heat illness and providing an effective response requires promptly acting on early warning signs.



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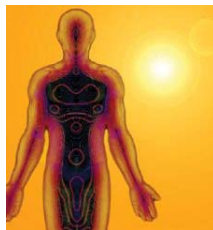
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## Medical Attention

Common early symptoms and signs of heat illness include

- Headache
- Muscle cramps
- Unusual fatigue



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## Medical Attention

Progression to more serious illness can be rapid.  
Symptoms include:

- unusual behavior
- nausea/vomiting
- weakness
- rapid pulse excessive sweating or hot dry skin
- seizures
- fainting or loss of consciousness

**Any of these symptoms require immediate attention.**


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## Remember!

- Even the initial symptoms may indicate serious heat exposure

**Suspect severe heat illness? CALL 911!**

- NOTE: Regardless of the worker's protests, no employee with any of the symptoms of possible serious heat illness noted above should be sent home or left unattended without medical assessment and authorization.


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## REVIEW

- Drink plenty of water.
- Take your breaks in a cool shaded area.
- Avoid alcohol and caffeine during periods of extreme heat.
- If you or a co-worker start to feel symptoms let your supervisor know and rest in a cool shaded area. If symptoms persist or worsen seek immediate medical attention.
- Wear protective clothing, protect your head and shade your eyes if working outdoors.
- Pay extra attention to your co-workers and be sure you know how to call for medical attention.


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## In Summary:

Heat Illness Prevention Elements Include:

- Access to water
- Access to shade
- Written procedures including emergency response
- Employee and Supervisory Training


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## For Additional Information

Visit the Cal/OSHA Heat Illness Webpage:  
<http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html>


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## Cal/OSHA Consultation





### How to reach us

Visit [www.dir.ca.gov/dosh/consultation.html](http://www.dir.ca.gov/dosh/consultation.html) for a complete listing of our services.

**Contact the nearest office:**

Fresno	559-454-1295
Oakland	510-622-2891
Sacramento	916-263-0704
San Diego	619-767-2060
San Bernardino	909-383-4567
Santa Fe Springs	562-944-9366
San Fernando Valley	818-901-5754

State wide: 800-963-9424


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