

## Indoor Heat Illness Prevention Procedures

California Code of Regulations, Title 8 (CCR T8), section 3396 addresses indoor workplaces. Depending on the circumstances, employers must develop written worker heat illness prevention procedures.

These procedures have been created to assist departments in establishing their own heat illness prevention procedures for indoor workplaces. They are not intended to supersede or replace the application of any other Title 8 sections, particularly section [3203](#), which requires an employer to establish, implement, and maintain an effective Injury and Illness Prevention Program (IIPP). You may:

- Integrate your indoor heat illness prevention procedures into your IIPP, or
- Develop a separate indoor heat illness prevention procedure.

You must also be aware that other standards may apply to heat illness prevention, such as the construction, and general industry requirements to provide drinking water, first aid, and emergency response.

**Note:** These procedures describe the minimum essential heat illness prevention steps applicable to most indoor work settings. In work environments where there is a higher risk for heat illness (e.g., during a heat wave or other severe working or environmental conditions), you must exercise greater caution and employ protective measures as needed to protect workers.

To effectively establish your procedures, carefully review the requirements of section 3396, along with the instructions provided for each of the elements, then develop written procedures applicable to your workplace. The Heat Illness Prevention Plan must be written in English and the language understood by the majority of the workers and must be available at the worksite. Effectively implement and maintain the heat illness prevention procedures you develop, including training workers and supervisors on your company procedures. Be sure to follow up to ensure your procedures are fulfilled.

To tailor these procedures to your work activities, evaluate and consider the specific conditions present at your site such as:

- Whether workers work indoors, outdoors, or both.
- The number of workers.
- The length of the work-shift.
- The ambient temperatures, heat index, and additional sources of heat workers are exposed to.
- The fact that personal protective equipment may increase the body's heat burden.

These sample procedures do not include every workplace scenario, so it is essential that you evaluate all conditions found in your individual workplace that are likely to cause a heat illness.

## Responsibility

Departments have the overall authority and responsibility for implementing the provisions of this procedure in their workplace. In addition, if applicable, managers and supervisors are responsible for implementing and maintaining the Indoor Heat Illness Prevention Program in their assigned work areas and for ensuring workers receive answers to questions about the procedures in a language they understand.

All workers are responsible for using safe work practices; following all directives, policies, and procedures; and assisting in maintaining a safe work environment.

This procedure shall be maintained on the EH&S website. It shall be available to workers or their representatives upon request.

## Procedures for the Provision of Water:

1. Fresh, pure, suitably cool water shall be provided to workers free of charge. Provide at least one quart per worker per hour for drinking for the entire shift. If you do not provide enough water at the start of the shift to last the entire shift, you must describe your procedures to replenish the drinking water throughout the shift. Tap water that meets the requirements of the EPA National Primary Drinking Water Regulations shall be acceptable.
2. Supervisors shall ensure that the water is fresh, pure, and suitably cool. During high indoor heat work conditions, the water shall be cooler than the ambient temperature, but not so cool as to cause discomfort.
3. The water shall be located within the cool-down area.
4. Workers shall be encouraged to frequently consume small quantities of water throughout their shift. *This can be accomplished verbally (during huddles or tailgate meetings), or by written postings.*
5. All water containers shall be kept in a sanitary condition. Water from non-approved or non-tested water sources (e.g., untested wells) is not acceptable. If hoses or connections are used, they must be approved for potable drinking water systems, as shown on the manufacturer's label.

## **Procedures for Access to Cool-Down Areas for Indoor Places of Employment**

1. Cool-down areas shall be located within a reasonable distance from the workplace. Temperature in the indoor cool-down areas shall be maintained at less than 82 degrees Fahrenheit.
2. The cool-down area(s) shall be available at the site to accommodate all of the workers who are on a break at any point in time and shall be large enough so that all workers on break can sit in a normal posture fully in the cool-down area(s) without having to be in physical contact with each other. To ensure this, the department may employ administrative controls such as staggered cool-down rest times.
3. Workers shall be informed of the location of the cool-down area(s) and shall be encouraged and allowed to take cool-down breaks in the cool-down area(s) whenever the indoor conditions exceed the limitation of this procedure. A worker who takes a preventative cool-down rest break shall be monitored and asked if they are experiencing symptoms of heat illness. In no case shall the worker be ordered back to work until signs or symptoms of heat illness have abated (see the section on Emergency Response for additional information). If a worker exhibits signs or symptoms of heat illness while on a preventative cool-down rest, then appropriate first aid or emergency response shall be provided. Preventative cool-down rest periods shall be at least 5 minutes, in addition to the time needed to access the cool-down area.

## **Procedures for Temperature Assessment for Indoor Places of Employment**

*This section only applies to indoor work areas where the temperature or the heat index equals or exceeds 87 degrees Fahrenheit when employees are present; or where employees work in high radiant heat, or wear full body coverall that restricts heat removal while the temperature equals or exceeds 82 degrees Fahrenheit.*

1. Contact Environmental Health and Safety for assistance. A thermometer and hygrometer shall be used measure temperature and heat index. Monitoring instruments shall be maintained according to manufacturer's recommendations and the instruments used to measure the heat index shall be based on the heat index chart in Appendix A of Section 3396 and page 11 of this procedure.
2. The temperature or heat index shall be measured and recorded by the department manager or their designee. Workers shall be actively involved in the planning, conducting, and recording of measurements of temperature or heat index.
3. Records of the temperature or heat index measurements, whichever value is greater, shall be retained for 1 year or until the next measurements are taken, whichever is later, and made available at to workers or designated representatives upon request. The records shall include the date, time, and specific location of all measurements.
4. Initial temperature or heat index measurements shall be taken where workers work and at times during the work shift when worker exposures are expected to be the greatest.
5. Measurements shall be taken again when they are reasonably expected to be 10 degrees Fahrenheit or more above the previous measurements where workers work and at times during the work shift when worker exposures are expected to be the greatest.
6. Workers shall be actively involved in identifying and evaluating other environmental risk factors for heat illness that may exist in the workplace.

## Procedures for Control Measures for Indoor Places of Employment

*This section applies to indoor work areas where the temperature or the heat index equals or exceeds 87 degrees Fahrenheit when employees are present; or where employees work in high radiant heat, or wear full-body coverall covering the arms, legs, and torso that restricts heat removal while the temperature equals or exceeds 82 degrees Fahrenheit.*

1. Feasible engineering controls shall be implemented first to reduce the temperature and heat index to below 87°F (or temperature to below 82°F for workers working in clothing that restricts heat removal or working in high radiant heat areas). Administrative controls shall be added if feasible engineering controls are not enough to comply with the standard. If both feasible engineering and administrative controls are not enough to decrease the temperature and minimize the risk of heat illness, then personal heat-protective equipment shall be provided.
2. The following engineering controls shall be implemented to lower the indoor temperature, heat index, or both to the lowest possible level. These controls help make the work environment cooler or create a barrier between the worker and the heat: The following are examples:
  - Cooling fans or air conditioning
  - 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
  - Local exhaust ventilation at points of high heat production or moisture (such as exhaust hoods in laundry rooms)
  - Reflective shields to block radiant heat
  - Insulating/isolating heat sources from workers, or isolating workers from heat source
  - Elimination of steam leaks
  - Cooled seats or benches
  - Evaporative coolers
  - Dehumidifiers
3. The following administrative controls shall be implemented once all feasible engineering controls have been implemented. These controls are modified work practices that can reduce

heat exposure by adjusting work procedures, practices, or schedules: The following are example:.

- Modify work schedules and activities to times of the day when the temperature is cooler or schedule shorter shifts, especially during heat waves. Heat wave means any day in which the predicted high temperature for the day shall be at least 80 degrees Fahrenheit and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding five days. 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 workers to work in pairs or groups during extreme heat so they can monitor each other for signs of heat illness.
4. The following personal heat-protective equipment shall be provided if feasible engineering controls do not decrease the temperature enough and administrative controls do not minimize the risk of heat illness. This personal heat-protective equipment consists of special cooling devices that the worker wears on their body that can protect them in hot environments: The following are examples:
- Water and/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

## **Procedures for Acclimatization:**

Acclimatization is the temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. The body needs time to adapt when temperatures rise suddenly, and a worker risks heat illness by not taking it easy when a heat wave or heat spike strikes, or when starting a new job that exposes the worker to heat to which the worker's body hasn't yet adjusted. Inadequate acclimatization can be significantly more perilous in conditions of high heat and physical stress. The following are additional protective procedures that shall be implemented when conditions result in sudden exposure to heat that workers are not accustomed to.

1. For indoor work areas, this 14-day observation period applies when the temperature or heat index equals or exceeds 87 degrees Fahrenheit, or when the temperature or heat index equals or exceeds 82 degrees Fahrenheit when a worker wears clothing that restricts heat removal or when a worker works in a high radiant heat area.
2. The new worker shall be observed by a manager or supervisor (or designee) during this 14-day observation period.
3. Workers and supervisors shall be trained in the importance of acclimatization, how it is developed, and how these company procedures address it.

## **Procedures for Emergency Response:**

1. Effective means of bringing emergency services to the worker in need, or the worker in need to emergency services shall be ensured by:
  - A. For indoor places of employment, managers and supervisors shall be provided a map of the worksite that shall allow them to give clear and precise directions to the worksite (e.g., street or road names, address, floor number, room number, etc.) to avoid a delay of emergency medical service.
  - B. The manager or supervisor shall designate a worker or workers to physically go to the nearest road or highway where emergency responders can see them and escort them to the victim.
2. Effective communication shall be ensured by cellular telephone or Vocera and shall be maintained so that workers can contact a supervisor when necessary. If the supervisor is unable to be near the workers (to observe them or communicate with them), then cellular telephone or Vocera may be used for this purpose.
3. To ensure that emergency medical services can be called, all supervisors shall have access to or carry communication devices, such as a cellular telephone or Vocera pendant. These communication devices shall be checked prior to each shift to ensure that they are functional. The preferred emergency telephone numbers for cellular phone usage shall be 916-734-2555 (Sacramento County), 530-752-1230 (Yolo County )
4. When a worker shows signs or symptoms of severe heat illness, emergency medical services shall be called, and steps shall immediately be taken to keep the stricken worker cool and comfortable to prevent the progression to more serious illness. Under no circumstances shall the affected worker be left unattended.
5. During a heat wave, heat spike, or hot temperatures, workers shall be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.
6. Workers and supervisors shall be trained in these written procedures for emergency response.



## **Procedures for Handling a Sick Worker:**

1. When a worker displays possible signs or symptoms of heat illness, a manager or supervisor shall evaluate the sick worker and determine whether resting in the cool-down area and drinking cool water shall suffice or if emergency service providers shall need to be called. A sick worker shall not be left alone in the cool-down area, as their condition could take a turn for the worse.
2. When a worker displays possible signs or symptoms of heat illness and no trained first aid worker or supervisor is available at the site, emergency service providers shall be immediately called.
3. Emergency service providers shall be called immediately if a worker displays signs or symptoms of severe heat illness (e.g., decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior, incoherent speech, convulsions, red and hot face), does not look okay, or does not get better after drinking cool water and resting in the shade. While the ambulance is en route, first aid shall be initiated (e.g., cool the worker by placing the worker in the shade, removing excess layers of clothing, placing ice packs in the armpits and groin area, and fan the victim). A sick worker shall not be allowed to go home, because even if they start to feel better, their condition could worsen, and they may die before reaching a hospital.
4. If a worker displays signs or symptoms of severe heat illness (e.g., decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior, incoherent speech, convulsions, red and hot face) emergency service providers shall be called, the signs and symptoms of the victim shall be communicated to them, and an ambulance shall be requested.

## **Procedures for Worker and Supervisor Training:**

To be effective, training must be understood by workers. Therefore, it must be given in a language and vocabulary the workers understand. Training records shall be maintained and shall include the date of the training, who performed the training, who attended the training, and the subject(s) covered. Training records shall be maintained by the Center for Professional Practice of Nursing (CPPN).

1. Supervisors shall be trained prior to being assigned to supervise other workers. Training will include this company's written procedures and the steps supervisors shall follow when workers exhibit symptoms consistent with heat illness.
2. All workers and supervisors shall be trained prior to working. Training shall include all aspects of implementing this company's written procedures, including access to sufficient water and *cool-down areas*, cool down rests, emergency response procedures, control measures, importance of frequent consumption of water, different types of heat illness, common signs and symptoms of heat illness, and acclimatization procedures. Workers and supervisors shall also be trained on the environmental and personal risk factors of heat illness, as well as the burden of heat load on the body caused by exertion, clothing, and personal protective equipment. The importance of immediately reporting signs and symptoms of heat illness shall be especially emphasized.

# NWS Heat Index

Temperature (°F)

Relative Humidity (%)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										



