

§ \_\_\_\_\_. Heat Illness Prevention in Indoor Places of Employment

**(a) Scope and Application.**

- (1) This standard applies to all indoor work areas where the temperature equals or exceeds 82 degrees Fahrenheit when employees are present.

EXCEPTION: For indoor work areas not subject to any of the conditions listed in subsection (a)(2) below, the employer is not required to comply with subsection (e), Assessment and Control Measures.

- (2) Conditions under which an indoor work area is subject to subsection (e):
- (A) The temperature equals or exceeds 87 degrees Fahrenheit when employees are present; or
  - (B) The heat index equals or exceeds 87 degrees Fahrenheit when employees are present; or
  - (C) Employees wear clothing that restricts heat removal and the temperature equals or exceeds 82 degrees Fahrenheit; or
  - (D) Employees work in a high radiant heat work area and the temperature equals or exceeds 82 degrees Fahrenheit.
- (3) This standard applies in any other setting identified in writing by the Division through the issuance of an Order to Take Special Action, in accordance with section 332.3 of these orders.
- (4) This standard applies to the control of risk of occurrence of heat illness. This is not intended to exclude the application of other sections of Title 8, including, but not necessarily limited to, sections 1512, 1524, 3203, 3363, 3395, 3400, 3439, 3457, 6251, 6512, 6969, 6975, 8420 and 8602(e). This is also not intended to exclude the application of section 3203 to indoor work areas not covered by this section where one or a combination of environmental risk factors can still cause heat illness in employees.

NOTE NO. 1: The measures required here may be integrated into the employer's written Injury and Illness Prevention Program required by section 3203, the employer's written Heat Illness Prevention Program required by section 3395, or maintained in a separate document.

NOTE NO. 2: This standard is enforceable by the Division of Occupational Safety and Health pursuant to Labor Code sections 6308 and 6317 and any other statutes conferring enforcement powers upon the Division. It is a violation of Labor Code sections 6310, 6311, and 6312 to discharge or discriminate in any other manner against employees for

exercising their rights under this or any other provision offering occupational safety and health protection to employees.

**(b) Definitions.**

“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.

“Administrative controls” means a procedure that limits exposure to a hazard by adjustment of work procedures or work schedules. Examples of administrative controls that may be effective at minimizing the risk of heat illness in a particular work area include, but are not limited to, acclimatizing employees, rotating employees, scheduling work earlier or later in the day, using work-rest schedules, reducing work intensity or speed, changing required work clothing, and using relief workers.

“Clothing that restricts heat removal” means full-body clothing covering the arms, legs, and torso that is any of the following:

- (1) Waterproof; or
- (2) Designed to protect the wearer from a chemical, biological, radiological, or fire hazard; or
- (3) Designed to protect the wearer or the work process from contamination.

EXCEPTION: “Clothing that restricts heat removal” does not include clothing with flame or arc-flash resistant properties demonstrated by the employer to be all of the following:

- (1) Constructed only of knit or woven fibers; and
- (2) Worn in lieu of the employee’s street clothing; and
- (3) Worn without a full-body thermal or moisture barrier.

“Cool-down area” means an indoor or outdoor area that is blocked-shielded from direct sunlight and shielded from other high radiant heat sources and is either open to the air or provided with ventilation or cooling. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. A cool-down area does not include a location where:

- (1) Environmental risk factors defeat the purpose of allowing the body to cool; or
- (2) Employees are exposed to unsafe or unhealthy conditions; or

(3) Employees are deterred or discouraged from accessing or using the cool-down area.

“Engineering controls” means an aspect of the work area or a device that removes or reduces hazardous conditions or creates a barrier between the employee and the hazard. Examples of engineering controls that may be effective at minimizing the risk of heat illness in a particular work area include, but are not limited to, isolation of hot processes, isolation of employees from sources of heat, air conditioning, cooling fans, cooling mist fans, evaporative coolers (also called swamp coolers), natural ventilation where the outdoor temperature or heat index is lower than the indoor temperature or heat index, local exhaust ventilation, shielding from a radiant heat source, and insulation of hot surfaces.

“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.

“Globe temperature” means the temperature measured by a globe thermometer, which consists of a thermometer sensor in the center of a 6-inch diameter hollow copper sphere painted on the outside with a matte black finish or equivalent. The globe thermometer may not be shielded from direct exposure to radiant heat while the globe temperature is being measured.

“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.

“Heat index” means a measure of heat stress ~~developed~~ ~~used~~ by the National Weather Service for outdoor environments that takes into account the dry bulb temperature and the relative humidity. For purposes of this standard, heat index refers to conditions in indoor work areas. Radiant heat is not included in the heat index.

NOTE: A chart listing National Weather Service heat index values (201~~98~~) can be found in Appendix A.

“High radiant heat work area” means a work area where the globe temperature is at least 5 degrees Fahrenheit greater than the “temperature,” as defined in this subsection.

“Indoor” refers to a space that is under a ceiling or overhead covering that restricts airflow; and is enclosed along its entire perimeter by walls, doors, windows, dividers, or other physical barriers that restrict air flow, whether open or closed. All work areas that are not indoor are considered outdoor and covered by section 3395.

EXCEPTION: “Indoor” does not refer to a shaded area that meets the requirements of section 3395 and is used exclusively as a source of shade for employees covered by

section 3395.

“Personal heat-protective equipment” means equipment worn to protect the user against heat illness. Examples of personal heat-protective equipment that may be effective at minimizing the risk of heat illness in a particular work area include, but are not limited to, water-cooled garments, air-cooled garments, cooling vests, wetted over-garments, heat-reflective clothing, and supplied-air personal cooling systems.

“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.

“Preventative cool-down rest” means a rest ~~break~~ taken in a cool-down area to prevent overheating.

“Radiant heat” means heat transmitted by electromagnetic waves and not transmitted by conduction or convection. ~~transferred from one body or object to another not in contact with it by electromagnetic waves rather than by conduction or convection.~~ Sources of radiant heat include the sun, hot objects, hot liquids, hot surfaces, and fire.

“Relative humidity” means the amount of moisture in the air relative to the amount that would be present if the air were saturated.

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“Shielding” means a physical barrier between radiant heat sources and employees that reduces the transmission of radiant heat.

“Temperature” means the dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer freely exposed to the air without considering humidity or radiant heat, to measure the temperature in the immediate area where employees are located.

“Union representative” means a recognized or certified collective bargaining agent representing the employees.

- (c) Provision of water.** 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 to employees free of charge. The water shall be located as close as practicable to the areas where employees are working and in indoor cool-down areas required by subsection (d). 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, as described in subsection (h)(1)(C), shall be encouraged.

**(d) Access to Cool-Down Areas.**

- (1) The employer shall have and maintain one or more cool-down areas at all times. The cool-down area shall be at least large enough to accommodate the number of employees on recovery or rest periods, so that they can sit in a normal posture fully in the cool-down areas without having to be in physical contact with each other. The cool-down area shall be located as close as practicable to the areas where employees are working. Subject to the same specifications, the size of the cool-down area during meal periods shall be at least enough to accommodate the number of employees on the meal period who remain onsite. The temperature in ~~the~~ indoor cool-down areas shall be maintained at less than 82 degrees Fahrenheit, unless the employer demonstrates it is infeasible.
- (2) Employees shall be allowed and encouraged to take a preventative cool-down rest in a cool-down area when they feel the need to do so to protect themselves from overheating. Such access to cool-down areas shall be permitted at all times. An individual employee who takes a preventative cool-down rest (A) shall be monitored and asked if he or she is experiencing symptoms of heat illness; (B) shall be encouraged to remain in the cool-down area; and (C) shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event less than 5 minutes in addition to the time needed to access the cool-down area.
- (3) If an employee exhibits signs or reports symptoms of heat illness while taking a preventative cool-down rest or during a preventative cool-down rest period, the employer shall provide appropriate first aid or emergency response according to subsection (f) of this section.

**(e) Assessment and Control Measures.** This subsection only applies to work areas subject to one or more of the conditions listed in subsection (a)(2).

- (1) As specified in subsections (e)(1)(A) through (e)(1)(D), the employer shall measure and record the temperature or heat index, whichever is greater, and shall identify and evaluate all other environmental risk factors for heat illness.

EXCEPTION: In lieu of complying with subsections (e)(1)(A) through (e)(1)(D), an employer may assume a work area is subject to one or more of the conditions listed in subsection (a)(2). Such employers shall comply with subsection (e)(2).

- (A) The employer shall establish and maintain accurate records of temperature or heat index measurements, whichever are required. The records shall include the date, time, and specific location of all measurements.
- (B) Temperature or heat index measurements, whichever are required, shall be taken where employees work and at times during the work shift when employee exposures are expected to be the highest.

1. Initial measurements shall be taken when it is reasonable to suspect that subsection (e) applies.
  2. Measurements shall be taken again when they are reasonably expected to be 10 degrees or more above the previous measurements.
  3. Temperature or heat index records shall be retained for 12 months or until the next measurements are taken, whichever is later, and made available at the worksite to employees and to representatives of the Division upon request.
- (C) Instruments used to measure the temperature or heat index shall be used and maintained according to the manufacturers' recommendations. Instruments used to measure the heat index shall utilize the National Weather Service heat index tables.
- (D) The employer shall have effective procedures to obtain the active involvement of employees and their union representatives s in ~~performing~~ the following:
1. Designing, conducting, and recording the measurements of temperature or heat index, whichever is greater.
  2. Identifying and evaluating all other environmental risk factors for heat illness.
- (2) The employer shall use control measures as specified in subsections (e)(2)(A) through (e)(2)(C) to minimize the risk of heat illness. The selection of control measures shall be based on the environmental risk factors for heat illness present in the workarea.
- (A) Engineering controls. Engineering controls shall be used to reduce and maintain both the temperature and heat index to below 87 degrees Fahrenheit when employees are present or the temperature to below 82 degrees Fahrenheit where employees wear clothing that restricts heat removal or work in high radiant heat work areas, except to the extent that the employer demonstrates such controls are infeasible. Where feasible engineering controls are not sufficient to reduce and maintain the temperature and heat index to below 87 degrees Fahrenheit or the temperature to below 82 degrees Fahrenheit where employees wear clothing that restricts heat removal or work in high radiant heat work areas:
1. The employer shall use engineering controls to reduce the temperature, heat index, or both, whichever applies, to the lowest feasible level, except to the extent that the employer demonstrates such controls are infeasible; and
  2. The employer shall use engineering controls to otherwise minimize the risk of heat illness, except to the extent that the employer demonstrates such controls are infeasible.

EXCEPTION: The employer may use administrative controls in lieu of engineering controls if the employer demonstrates that the administrative controls can minimize the risk of heat illness more effectively than engineering controls.

- (B) Administrative controls. Where feasible engineering controls are not sufficient to reduce and maintain the temperature and heat index to below 87 degrees Fahrenheit when employees are present or the temperature to below 82 degrees Fahrenheit where employees wear clothing that restricts heat removal or work in high radiant heat work areas, administrative controls shall be used to minimize the risk of heat illness, except to the extent that the employer demonstrates such controls are infeasible.
- (C) Personal heat-protective equipment. Where feasible engineering controls are not sufficient to reduce and maintain the temperature and heat index to below 87 degrees Fahrenheit when employees are present or the temperature to below 82 degrees Fahrenheit where employees wear clothing that restricts heat removal or work in high radiant heat work areas, personal heat-protective equipment shall be used to minimize the risk of heat illness, except to the extent that the employer demonstrates that use of such equipment is infeasible.
- (f) Emergency Response Procedures.** The employer shall implement effective emergency response procedures including:
- (1) Ensuring that effective communication by voice, observation, 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, the employer will ensure a means of summoning emergency medical services.
  - (2) 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.
    - (A) 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.
    - (B) 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.
    - (C) 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.
  - (3) Contacting emergency medical services and, if necessary, transporting employees to a place where they can be reached by an emergency medical provider.

- (4) 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.

**(g) Close Observation during Acclimatization.**

- (1) Where no effective engineering controls are in use to control the effect of outdoor heat on indoor temperature, 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 outdoor temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily outdoor temperature in the preceding five days. ~~when the temperature in the work area is at least 10 degrees Fahrenheit higher than the average high daily temperature in the work area during the preceding five days.~~
- (2) An employee who has been newly assigned to any of the following shall be closely observed by a supervisor or designee for the first 14 days of the employee's employment:
  - (A) To a work area where the temperature or heat index, whichever is greater, equals or exceeds 87 degrees Fahrenheit; or
  - (B) To work involving the use of clothing that restricts heat removal where the temperature equals or exceeds 82 degrees Fahrenheit; or
  - (C) To a high radiant heat work area where the temperature equals or exceeds 82 degrees Fahrenheit.

**(h) Training.**

- (1) Employee training. Effective training in the following topics shall be provided to each supervisory and non-supervisory employee before the employee begins work that should reasonably be anticipated to result in exposure to the risk of heat illness:
  - (A) 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.
  - (B) The employer's procedures for complying with the requirements of this standard, including, but not limited to, the employer's responsibility to provide water, cool-down rests, and access to first aid as well as the employees' right to exercise their rights under this standard without retaliation.
  - (C) 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.

- (D) The concept, importance, and methods of acclimatization and of close observation during acclimatization pursuant to the employer's procedures under subsection (i)(54).
- (E) The different types of heat illness, the common signs and symptoms of heat illness, and appropriate first aid and/or emergency responses to the different types of heat illness, and in addition, that heat illness may progress quickly from mild symptoms and signs to serious and life-threatening illness.
- (F) 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.
- (G) The employer's procedures for responding to signs or symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary.
- (H) The employer's 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.
- (I) 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.

(2) Supervisor training. Prior to supervising employees performing work that should reasonably be anticipated to result in exposure to the risk of heat illness, effective training on the following topics shall be provided to the supervisor:

- (A) The information required to be provided by section (h)(1) above.
- (B) The procedures the supervisor is to follow to implement the applicable provisions in this section.
- (C) The procedures the supervisor is to follow when an employee exhibits signs or reports symptoms consistent with possible heat illness, including emergency response procedures.
- (D) Where the work area is affected by outdoor temperatures, how to monitor weather reports and how to respond to hot weather advisories.

**(i) Heat Illness Prevention Plan.** The employer shall establish, implement, and maintain an

effective heat illness prevention plan. The plan shall be in writing in both English and the language understood by the majority of the employees and shall be made available at the worksite to employees and to representatives of the Division upon request. The Heat Illness Prevention Plan may be included as part of the employer's Illness and Injury Prevention Program required by section 3203 or Heat Illness Prevention Program required by section 3395 and shall, at a minimum, contain:

- (1) Procedures for the provision of water in accordance with subsection (c).
- ~~(2) and~~ Procedures for access to cool-down areas in accordance with subsections ~~(c) and~~ (d).
- ~~(2)~~(3) Procedures, in accordance with subsection (e), to measure and record the temperature or heat index, whichever is greater; identify and evaluate all other environmental risk factors for heat illness; and implement control measures.
- ~~(3)~~(4) Emergency response procedures in accordance with subsection (f).
- ~~(4)~~(5) Procedures for close observation during acclimatization in accordance with subsection (g).

