CSUDH | ENVIRONMENTAL HEALTH & SAFETY

HEAT ILLNESS PREVENTION FOR INDOOR AND OUTDOOR WORKERS

Contents

INTRODUCTION

Heat related illness is a serious medical condition that results when the body is unable to cool itself sufficiently through sweating. Depending upon the job, California State University, Dominguez Hills (CSUDH) employees may regularly work outdoors in warm weather, increasing their risk of heat illness. At times, employees may work in unairconditioned indoor settings with exposures to warm temperatures. CSUDH has developed this plan to protect its workers from the dangers of high temperatures. Specific protocols shall be followed for both outdoor and indoor heat.

The purpose of this policy is to prevent heat related illnesses through engineering controls, education, and accountability for safe work practices. It will ensure that supervisors and employees know how to reduce the risk of heat related illness and can respond properly if heat related illnesses occur.

Title 8 of the California Code of Regulations (CCR) requires a written heat illness prevention program for both outdoor and indoor workplaces (*Heat Illness Prevention in Outdoor Places of Employment* 8 CCR § 3395, and *Heat Illness Prevention in Indoor Places of Employment* 8 CCR § 3396).

This plan is accessible electronically on the CSUDH Environmental Health and Safety (EHS) webpage at https://www.csudh.edu/ehs/. Paper copies are available at the EHS office to workers or their representatives upon request.

Inclusions
The program applies to all departments with outdoor worksites, and to indoor worksites where it could be reasonably anticipated that heat related illness could occur (e.g. campus gymnasium, boiler rooms, attics, un-airconditioned workspaces).

Exclusions
Work spaces in air conditioned or refrigerated environments are not included in this plan. Auxiliary programs, tenants, contractors, and vendors must maintain their own *Heat Illness Prevention Plan*. These include but are not limited to:

- Loker Student Union
- Toro Auxiliary Partners
- California Academy of Math and Science
- Farmer's Market
- Dignity Sports Center

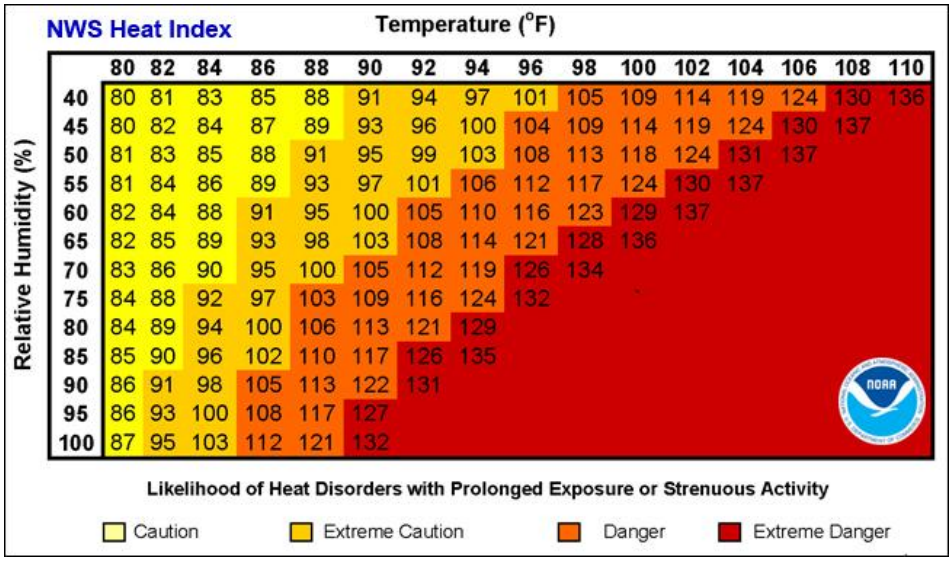
Unairconditioned storage rooms, sheds, and outer storage buildings are not intended for regular work or continual occupancy and are excluded from the indoor heat illness program. These buildings may not be occupied for more than 15 minutes of any given hour. When they are occupied for longer periods, this plan shall be activated.

DEFINITIONS

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.

Relative Humidity is the amount of moisture in the air relative to the amount that would be present if the air were saturated.

Heat Index is a measure of heat stress developed by the National Weather Service (NWS) for outdoor environments that takes into account the dry bulb temperature and the relative humidity. Radiant heat is not included in the heat index. The NWS heat Index chart below was created by the National Oceanic and Atmospheric Administration and can be useful for training purposes. However, the required NWS heat index chart (2019) is in Appendix A of *Heat Illness Prevention in Indoor Places of Employment* 8 CCR § 3396.



Indoors 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 airflow, whether open or closed. All work areas that are not indoors are considered outdoors.

Acclimatization **-** The 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 about two hours per day in the heat.

Preventative cool-down rest - a period of time to recover from the heat in order to prevent heat illness.

Shade - The blockage of direct sunlight. Canopies, umbrellas, trees, buildings, or temporary structures or devices may be used to provide shade. 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. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use.

Cool-down area (outdoor workers) - a shaded indoor or outdoor space that is protected from direct sunlight and other heat sources, and has good ventilation or air conditioning. The temperature should be below 82°F, if possible, and the area should be large enough to accommodate the number of employees on rest breaks. Cool-down areas should be as close to the work area as possible with ample seating that allows workers to sit in a normal posture without having to be in physical contact with each other.

Cool-down area (indoor workers) – an area away from the high temperature work area that is maintained below 82 degrees Fahrenheit with ample seating that allows workers to sit in a normal posture without having to be in physical contact with each other.

Heat illness – 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.

Environmental risk factors for heat illness - The 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 personnel protective equipment worn by employees.

Personal risk factors for heat illness - 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.

RESPONSIBILITIES

The program administrator is the Environmental Health and Safety Director. This person is responsible to review the program for effectiveness and to make revisions when necessary.

Environmental Health and Safety shall:

- Provide training to all potentially impacted employees and their supervisors on the risks and prevention of heat illness, including how to recognize symptoms and respond when they appear
- Maintain training records

Department Managers shall:

- Identify all employees who are required to work outdoors or in other environments where potential heat illness could occur
- Provide affected employees with access to adequate water and shade at the job site when the environmental risk factors for heat illness are present
- Ensure that all affected employees have received proper training for heat illness prevention
- Make the plan accessible to employees and maintain a physical copy at the worksite (i.e. employee stations such as a workshop)
- Allow and encourage affected employees to drink water frequently and take a preventative cool-down rest in the shade when they feel the need to do so to protect themselves from overheating
- Monitor the temperature at the job site and implement high-heat procedures when required

- Implement emergency response procedures and contact University Police to request emergency medical services in the event medical assistance is required

Affected Employees shall:

- Attend training and comply with the provisions of the program
- Ensure they have drinking water available at all times when the environmental risk factors for heat illness are present
- Ensure they have access to a shaded area to prevent or recover from heat-related symptoms
- Monitor coworkers and themselves for signs and symptoms of heat-related illness
- Report all signs and symptoms of heat-related illness to their supervisor

WEATHER MONITORING AND TEMPERATURE ASSESSMENT

Outdoor Work Places

Supervisors with outdoor workers shall be trained and instructed to check the extended weather forecast in advance. Local weather forecasts are available on CSUDH issued mobile phones. Data for weather information is sources from the National Weather Service and the Weather Channel. Advanced planning for work schedules must be arranged whenever temperatures are expected to reach 70 degrees or higher. Since the average temperature for many months is 70 degrees or higher, standard practices shall be in place for most outdoor work (e.g., planning more strenuous work in direct sun during cooler morning hours).

Prior to each work day, the supervisor will monitor the weather at the worksite. This information will be used to determine to evaluate risk levels for heat illness and to determine when modifications should be made to the work schedule (e.g., increasing water and rest breaks, rescheduling start times and tasks).

Shade must be provided to employees when temperatures reach or exceed 80 degrees Fahrenheit. In general, this requires regular monitoring. At CSUDH, however, shade and air-conditioned buildings are available to employees at all times, regardless of the outside temperature.

When the temperature meets or exceeds 95 degrees, high heat procedures will be placed into effect. See the high-heat procedures section for additional information.

Indoor Work Places

Air conditioning temperatures are regulated through the central plant. Air conditioning is programmed so that no building exceeds 79 degrees Fahrenheit. Buildings without air conditioning shall be outfitted with digital thermometers that run continually and are capable of being read remotely. Unairconditioned buildings and rooms where regular work takes place are listed on Table 1. Unairconditioned storage rooms, sheds, mechanical rooms, tunnel spaces, and outer storage buildings are not intended for regular work or continual occupancy and are excluded from both the indoor heat illness program and the thermometer requirement.

2. The temperature will be measured and recorded automatically by this system (see table 1). Information is accessible to the central plant.

3. Records of the temperature or heat index measurements, whichever value is greater, will be retained for 1 year or until the next measurements are taken, whichever is later, and made available through the Environmental Health and

Safety department to workers or designated representatives upon request. The records will include the date, time, and specific location of all measurements.

4. State law requires 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 and when it is suspected to equal or excel 82 degrees Fahrenheit. This system records temperatures at all times. The central plant will communicate with managers when the above criteria is met.

5. State law requires measurements to 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. This system records temperatures at all times. The central plant will communicate with managers when the above criteria is met.

Table 1 – Unairconditioned Indoor Workspaces

Building Location	Thermometer Location	Thermometer Type
Campus gymnasium	Near the basketball court	Metasys JCI
Warehouse	On wall by first aid kit	MN-NTHM network temperature and humidity monitors
Central plant	In control room and office	MN-NTHM network temperature and humidity monitors
Auto shop	Main area	MN-NTHM network temperature and humidity monitors

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 will be implemented when conditions result in sudden exposure to heat that workers are not accustomed to.

1. Supervisors shall monitor weather daily for potential heat waves, heat spikes or temperatures to which workers haven't been exposed for several weeks or longer.
2. New workers and those who have been newly assigned to a high-heat area will be closely observed by the supervisor for the first 14 days on the job.
3. During this 14 day 'breaking-in' period, the intensity of the work will be lessened. Work will be scheduled at a slower pace and be less physically demanding. The less physically demanding work will be scheduled during the hot parts of the day and the heaviest work activities scheduled for the cooler part of the day (e.g. early morning or evening). The steps taken to lessen the intensity of the workload must be documented.
4. For indoor work areas, the 14-day observation applies when the indoor temperature or heat index equals or exceeds 87 degrees Fahrenheit, or when the indoor 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 areas (e.g. near boilers or ovens).
5. Applicable workers and supervisors will be trained in the importance of acclimatization, how it is developed, and how CSUDH procedures address it.

PROVISION OF WATER

CSUDH provides cool, fresh plumbed water at every building on campus. All buildings have one or more drinking fountains equipped with water bottle filling stations. Drinking fountains are also located in many outdoor campus areas. Campus plumbers ensure that drinking fountains are kept in good working condition. Campus custodial staff ensures that drinking fountains are kept in a sanitary condition. The plumbing department has a regular schedule for changing the filers in these units and for keeping them in good repair.

Employees who work outdoors are provided with water bottles that can be refilled at any time at one of the many filling stations, free of charge. Some employees may elect to provide their own water bottle or thermos. Employees shall be encouraged to drink water frequently and consume one quart or more per hour. This shall be communicated through daily meetings during warm weather. Water obtained from non-approved sources (e.g. an outdoor hose) is not acceptable.

Water in Extreme Temperatures – Outdoor Workers
During a heat wave or when the temperature is 95 degrees Fahrenheit or above, pre-shift meetings are required for outdoor workers. At that time, supervisors or leads shall encourage employees to drink plenty of water and remind them of their right to additional cool-down rest periods when needed. Water breaks shall be increased and supervisors shall lead by example and remind employees throughout the day to drink water.

PROVISION OF SHADE (OUTDOOR WORK)

CSUDH has many shaded seating areas for workers, students, and guests to cool down when temperatures are high. Employees may also cool off inside the many air-conditioned buildings on campus. When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit, employees shall be encouraged to take advantage of these areas to cool down *before* becoming overheated. These areas provide ample shade and seating for meal periods, breaks, and any other cooling down periods. Additionally, shade shall also be provided when temperatures are lower than 80 degrees Fahrenheit when requested by the employee.

Outdoor 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 allowed 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
- Be encouraged to remain in the shade
- 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 shade

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 supervisor shall provide appropriate first aid or emergency response.

When workers are regularly moving from place to place (such as the landscaping crew), shade needs shall be assessed at each new location. When needed,

PROVISION OF COOL-DOWN AREAS (INDOOR WORK)

The vast majority of buildings at CSUDH are air-conditioned. Very few employees are required to work in indoor areas that are not air conditioned. Most buildings have reception areas with tables and chairs for students or employees to sit. The cool-down areas are available to accommodate all workers who are on a break at any point in time and is large enough so that workers on a break can sit in a normal posture fully in the cool-down area without having to be in physical contact with one another.

Workers will be informed of the location of the cool-down area(s) and will be encouraged and allowed to take a cool-down break whenever they feel it is needed. Preventative cool-down rest periods will be at least 5 minutes, in addition to the time needed to access the cool-down area. Employees must inform their supervisor that a cool down break is requested. The supervisor shall monitor the employee and ask if they are experiencing symptoms of heat illness. If a worker exhibits signs or symptoms of heat illness while on a preventative cool-down rest, then appropriate first aid or emergency response will be provided. In no case will 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).

HEAT WAVES AND HIGH HEAT

When temperatures are 95 degrees Fahrenheit or above, high heat procedures shall be implemented for outdoor workers. Pre-shift meetings shall be conducted before beginning work during high-heat periods to review the following safe working practices:

- Establishing regular communication between coworkers and supervisors, primarily via cell phone contact
- Observing employees for signs and symptoms of heat illness. This
- Instructing and allowing employees to call 911 when emergency services are needed
- Reminding employees to drink water regularly throughout the workday
- Remind employees of their right and responsibility to take a cool-down rest when needed

TRAINING

Effective heat-illness training must be presented using language and vocabulary that workers understand. All workers and supervisors must be trained before work is conducted. The importance of immediately reporting signs and symptoms of heat illness will be especially emphasized. Training shall be conducted annually and must include:

Supervisors

- CSHUD's written outdoor and indoor heat illness prevention program
- CSUDH's responsibility to provide water, access to cool-down areas or shade, and preventative cool-down rests
- Environmental and personal risk factors of heat illness
- Burden of heat load on the body caused by exertion, clothing, and personal protective equipment
- Control measures designed to reduce the risk of heat illness
- How to track the weather at the job site
- How hot weather changes work schedules, job assignments, water and rest breaks
- How to recognize signs and symptoms of different types of heat illness

- How to provide first aid and emergency response for employees suffering from heat illness
- How to ensure non-English speaking employees are able to contact emergency services

Employees

- CSUDH's written outdoor and indoor heat illness prevention program
- High heat procedures
- Right to water, cool-down areas or shade, preventative cool-down rests
- Right to exercise their rights without retaliation
- Types of heat illness and their common signs and symptoms
- Environmental and personal risk factors of heat illness
- Burden of heat load on the body caused by exertion, clothing, and personal protective equipment
- Steps to providing first aid and contacting emergency medical services including:
    - How to proceed when there are non-English speaking workers
    - How to direct emergency workers to the worksite

When the temperature is expected to excel 80 degrees Fahrenheit, supervisors shall hold short safety meetings to review the weather report, reinforce heat illness prevention with all workers, provide reminders to drink water frequently, and inform them of areas where shade or air conditioning is available. Workers will also be reminded to look for signs and symptoms of heat illness in themselves and other workers. The buddy system will be used with new workers (with an experienced employee) to ensure that they understand the training and follow company procedures.

EMERGENCY RESPONSE

During a heat wave, heat spike, or hot temperatures, supervisors will review emergency reporting procedures with employees. All supervisors carry cell phones that employees can call in an emergency. Employees will be encouraged to immediately report any signs and symptoms they are experiencing or that are observed in other employees.

When a worker shows signs or symptoms of severe heat illness, campus police will be called, and steps will immediately be taken to keep the worker cool and comfortable to prevent the progression to more serious illness. Under no circumstances will the affected worker be left unattended.

Contacting emergency services

CSUDH has a campus police department. All 911 calls placed while on campus are routed to them; they are the first to respond to emergency calls. The department is familiar with all areas of the campus, however, it is important that workers are able to describe their locations accurately.

Effective communication

Communication is ensured by utilizing cell phones. Workers are provided with supervisor telephone numbers or may call 911 in an emergency.

Effectively trained personnel

All campus police officers are trained to respond in CPR/first aid, including employees suffering from heat illness.

Language barriers

The campus police department is staffed with personnel who speak Spanish and can assist if a language barrier exists. If other language barriers exist (such as with a contract or temporary worker), the police department will communicate with fire or other emergency services and contact the employee's supervisor to learn their location.

PROCEDURES FOR HANDLING A SICK WORKER

When workers display possible signs or symptoms of heat illness, the supervisor will be called to determine whether resting in a cool area and drinking water will be sufficient or whether emergency workers (i.e., campus police) should be contacted. Campus police must be contacted immediately if workers display signs of extreme heat illness (such as decreased levels of consciousness, staggering, vomiting, disorientation, irrational behavior, incoherent speech, convulsions, red and hot face or does not appear to be well in any other way). Sick workers shall not be left alone. Under no circumstances shall the worker be permitted to go home. Symptoms may worsen and the worker unable to contact emergency services on their own. Even if the worker appears to be getting better, the condition may worsen and they may die before reaching a hospital.

When emergency services are on route, first aid shall be initiated (e.g. cooling the worker down through shade, removing excess of clothing, placing ice packs in the armpits and groin area, fanning the victim).