



HEAT ILLNESS PREVENTION PROGRAM (HIPP)

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I. Policy Statement

It is the policy of Thorpe Design to provide a safe environment for employees at each of our jobsites and any other site occupied by its activities or services.

The Company has a commitment to the prevention of on-the-job accidents; treatment, care and rehabilitation of an injured employee; and the employee's rights and responsibilities when an on-the-job injury occurs, while protecting the financial integrity of the Company.

II. Purpose

The purpose of this program is to prevent illness resulting from exposure to warm working conditions. The program is intended to assist in complying with California Code of Regulations, Title 8 (CCR8), Section 3395, Heat Illness Prevention. The Heat Illness Prevention Plan establishes procedures and provides information necessary to educate employees in the recognition and prevention of heat-related illness and to ensure their own safety and the safety of others.

III. Scope

This program will apply to all employees whose primary job assignment involve outdoor work and may be exposed to environmental risk factors that could place the individual at risk of heat-related illness.

IV. Definitions

Acclimatization: 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.

Environmental Risk Factors: 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.

Heat Illness: A serious medical condition resulting from the body's inability to cope with a particular heat load.

Heat Rash: A condition that occurs in hot, humid environments where sweat cannot easily evaporate from the skin. Heat rash produces a rash which in some cases causes severe pain.

Heat Cramps: Painful muscle spasms that result from the loss of salt and electrolytes due to excessive sweating. Cramps will usually affect the stomach, arms, and legs.

Heat Exhaustion: A state brought on by the loss of fluids during excessive sweating. Heat exhaustion produces nausea, headaches, clammy and moist skin, weakness and fainting.

Heat Stroke: Severe medical emergency that can result in death. The body's core temperature gets too high and can no longer cool itself down. Heat Stroke produces hot and dry skin (usually no sweating).

Personal Risk Factors: 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.

Recovery Period: A period of time to rest and recover from the heat in order to prevent heat illness.

Shade: Blockage of direct sunlight. Canopies, umbrellas, and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow while 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.

V. Risk Factors

Each employee and work task has unique characteristics that affect the susceptibility to Heat Related Illness. The following factors should be considered when evaluating the risk of Heat Related Illness.

Personal Factors:

- Age (very young and elderly are more affected)
- Personal Health/Fitness/Obesity and other Health Conditions
- Personal Stress
- Dehydration
- Alcohol Use
- Certain Drugs, Medications, or Supplements (Be particularly cautious if taking antihistamines, cold or cough medicines, blood pressure/heart medication, diet pills, seizure medication, laxatives, thyroid pills, diuretics, etc. Check with your health care provider to determine whether your medications will have any effects on your exposure to heat.)
- Lack of Acclimatization to Hot Weather or Hot Weather Work

Environmental Risk Factors (job related):

- Duration of Activity
- Metabolic Load (how strenuous the work is)
- Wearing Heavy Attire or Protective Clothing (PPE)

Environmental Risk Factors (environmentally related):

- Temperature
- Humidity
- Air Velocity
- Radiant Heat Sources (sunlight, reflection, etc.)

VI. Prevention

The following steps should be taken to prevent Heat Related Illness:

- **Acclimate yourself:** It takes several days of being exposed to hot weather work to become accustomed to it. Begin with short durations of hot weather work and gradually increase your exposure time to allow your body to become accustomed.
- **Schedule activities:** Schedule vigorous outdoor activity for cooler times of the day, such as early morning, when possible. Work/rest schedules should be adjusted in correlation to increasing temperatures. Cycles of shorter work shifts and more frequent rest periods are preferable.
- **Monitor the weather:** Check the forecast and review the Heat Index (see Appendices, Table 1). The Heat Index chart will indicate when combinations of heat and humidity can be dangerous for employees. Realize that direct sun can add as much as 15 degrees to the heat index.
- **Wear lightweight clothing:** Wear loose fitting, light-colored, and lightweight clothing that breathes, such as cotton.

- **Protect yourself:** Wear a hat or use an umbrella to protect yourself from the sun when possible. Use sunscreen with a sun protection factor (SPF) of 15 or more. Relocate working areas to the shade if possible.
- **Hydrate yourself:** Drink fresh water or other liquids every 15-20 minutes, even if you do not feel thirsty. Drink a minimum of 1 quart of fresh water every hour. Drink plenty of water before starting outdoor activities and drink water throughout the day. Avoid beverages containing caffeine (such as tea, coffee, or cola).
- **Monitor coworkers:** Use a “buddy system” so that workers and supervisors can monitor each other when out in the field.

VII. Acclimatization

Acclimatization refers to the physiological adaptation that occurs when an individual accustomed to working in a cool environment is exposed to a hot environment. Any individual may develop signs of significant strain with abnormally high body temperature, pounding heart, and other signs of heat stress when beginning to work in a hot environment.

On each succeeding day in the hot area, his or her ability to adjust to the hot environment improves and the signs of discomfort and strain diminish. After a period of a week, no difficulty should be expected.

An acclimatization period may also be necessary upon return from vacation or other extended periods away from the workplace.

VIII. Heat Illness Types and Symptoms

Heat Cramps:

Heat cramps are muscle spasms which usually affect the arms, legs, or stomach. These occur when workers drink sufficient amounts of water but do not replace their body’s salt loss. They are usually caused by heavy sweating, especially when water is not replaced quickly enough.

Prevention/First Aid:

Drink electrolyte solutions such as Gatorade or plenty of water during the day and try eating more fruits such as bananas to help keep the body hydrated. Increase intake of non-diuretic fluids and rest. Common diuretic fluids that should be avoided include caffeine-containing products and alcoholic beverages, etc. A damp towel applied to the head or neck may speed cooling. Call 911 and your supervisor immediately if the person becomes ill.

Heat Exhaustion

This condition results from loss of fluid through sweating when a worker fails to drink enough fluids, replace mineral loss, or both. The worker still sweats but experiences extreme weakness/fatigue, intense thirst, dizziness, giddiness, nausea, and/or headache. The skin is clammy and moist, the complexion is pale/flushed, and the body temperature is normal or slightly higher.

Prevention/First Aid:

Move the affected individual to a cool location such as a shaded area or air-conditioned building. Have them lie down with their feet slightly elevated. Loosen their clothing, apply cool wet cloths, or fan them. Remove as much clothing as possible. Have them drink water or electrolyte drinks. Try to cool them down and have them checked by medical personnel. Victims of heat exhaustion should avoid strenuous activity for at least a day and continue to drink water to replace lost body fluids. Call 911 immediately if the person becomes non-responsive, refuses water, vomits, or loses consciousness. Contact your supervisor immediately.

Heat Syncope (Fainting)

Heat syncope, or fainting, can occur if a worker is not acclimatized to heat and if the worker stands still rather than moving around.

Prevention/First Aid:

Victims usually recover after a brief period of lying down. Moving around, rather than standing still in the heat, will reduce the possibility of fainting. Call 911 and your supervisor immediately if the person becomes ill.

Heat Stroke

Heat Stroke is a potentially life-threatening illness. It is caused by the failure of the body's internal mechanism to regulate its core temperature. A heat stroke victim may first suffer heat cramps and/or heat exhaustion before progressing into the heat stroke stage, but this is not always the case. Heat stroke is sometimes mistaken for a heart attack. It is therefore very important to be able to recognize the signs and symptoms of heat stroke and to check for them anytime someone collapses while working in a hot environment.

Symptoms include a high body temperature (106 degrees or higher), hot dry skin which may be red, mottled, or bluish, mental confusion, delirium, loss of consciousness, convulsions, coma, and absence of sweating.

Prevention/First Aid:

Victims of heat stroke can die unless treated promptly. It is vital to quickly lower a heat stroke victim's body temperature. Move victim to a shaded or cool area, pour water on them, fan them, or apply cold packs. Call 911 immediately to get the person medical aid as soon as possible and contact your supervisor.

IX. Notification Procedures

Any person showing symptoms or signs of heat illness, either in themselves or in a co-worker, must report his or her condition to immediate supervisor.

In the event an employee experiences signs or symptoms of heat illness, contact 911 by phone. Provide clear and precise directions to the location of the ill employee to emergency responders.

If the victim is at a site location that may be difficult for responding emergency personnel to locate, personnel on the scene shall go to the site entrance to provide directions for responding emergency service providers. If the victim is at a location not readily accessible, if necessary and if possible without causing any further injury, the affected person may be relocated using an available vehicle to an accessible location.

X. Responsibilities

Safety Manager

- A. Prepare and maintain a written program which complies with the requirements of applicable Cal/OSHA standards.
- B. Assist with providing training materials and training potentially impacted employees and their supervisors on the risks and prevention of heat illness, including how to recognize symptoms and respond when they appear.

Directors, Managers, and Supervisors

- A. Develop procedures on how the requirements of the applicable standards will be met and ensure all requirements are followed.
- B. Identify all employees who are required to work outdoors where potential heat illness could occur.
- C. Assure that adequate water and shade are available at the job site when the environmental risk factors for heat illness are present.
- D. Ensure that emergency response procedures are in place to respond to employees who may be affected by heat-related illness.
- E. Ensure all affected employees have received proper training on heat illness prevention.

Affected Employees

- A. Comply with the provisions of this Heat Illness Prevention Program, as described in this document, written procedures, and training received.
- B. Verify they have drinking water available at all times when the environmental risk factors for heat illness are present and report water supply deficiencies to their supervisor.
- C. Verify they have access to a shaded area to prevent or recover from heat-related symptoms and report to their supervisor any inadequate shade conditions.
- D. Reporting heat-related illness symptoms to their supervisor.

XI. Compliance

The Title 8 requirements are met by providing access to potable drinking water to all organizational personnel by way of plumbed sources such as water fountains located at fixed sites and/or portable coolers carried on organizational vehicles.

Personnel working in heat-related occupations are also encouraged to take more frequent breaks in shaded areas or cooled vehicles when necessary.

Directors, managers, and supervisors shall provide refresher training to all affected personnel as needed through safety meetings and tailgate safety briefings.

All assigned supervisors of employees working in heat-related areas shall be trained and familiar with required employee training, procedures implementing applicable provisions of this program, and procedures to follow when an employee exhibits possible heat-related symptoms due to heat illness.

When needed, supervisors shall provide additional supervision to new employees or employees returning from extended leave to ensure the workers are adequately acclimated.

XII. Program Components

The following elements of the Company program for heat illness prevention provide specific information for departments and supervisors complying with the program:

Provision of Water

Whenever environmental risk factors for heat illness exist, supervisors are responsible to ensure that fresh, pure, and suitably cool potable water and located as close as practicable to where employees are working, with exceptions when employers can demonstrate infeasibility.

Where unlimited drinking water is not immediately available from a plumbed system, supervisors must provide enough water for every employee to be able to drink one quart of water per hour for the entire shift (at least 2 gallons per employee for an 8-hour shift). Smaller quantities of water may be provided

at the beginning of the shift if there are effective procedures for replenishing the water supply during the shift as needed.

The Cal/OSHA standard requires not only that water be provided, but that supervisors encourage employees to drink frequently. Employees must understand that thirst is not an effective indicator of a person's need for water and it is recommended that individuals drink one quart of water, or four 8-ounce cups, per hour when working in hot environments.

Supervisors shall ensure water is available to all employees. Supervisors shall take one or more of the following steps to ensure employees have access to drinking water:

- A. Provide access to potable water source
- B. Supply water cooler/dispenser and single service cups
- C. Supply sealed one time use water containers

Drinking water and water dispensers shall meet the following requirements:

- All sources of drinking water shall be maintained in a clean and sanitary condition
- Drinking water must always be kept cool. When temperatures exceed 90° F it is recommended that ice be provided to keep the water cool.
- Potable drinking water dispensers used to provide water to more than one person shall be equipped with a spigot or faucet
- Any container used to store or dispense drinking water shall be clearly marked as to the nature of its contents and shall not be used for any other purpose
- Dipping or pouring drinking water from containers, such as barrels, pails or tanks, is prohibited regardless of whether or not the containers are fitted with covers
- The use of shared cups, glasses or other vessels for drinking purposes is prohibited
- Non-potable water shall not be used for drinking
- Outlets for non-potable water shall be posted in a manner understandable to all employees that the water is unsafe for drinking

Access to Shade

Supervisors are responsible to ensure that employees have access to a shaded area when the temperature reaches 80 degrees. Shaded areas shall accommodate all employees on recovery periods and meal periods and allow employees to sit in the shade without touching each other.

The nearest shaded area must be as close as practicable. Usually this will mean that shade must be reachable within a 2-1/2 minute walk, but in no case more than 1/4-mile or a five-minute walk away, whichever is shorter.

Canopies, umbrellas or other temporary structures may be used to provide shade, provided they block direct sunlight. Trees and dense vines can provide shade if the canopy of the trees is sufficiently dense to provide substantially complete blockage of direct sunlight. Areas shaded by artificial or mechanical means, such as by a pop-up canopy as opposed to a tree, must provide means for employees to avoid contact with bare soil.

The interior of a vehicle may be used to provide shade if the vehicle is air-conditioned and the air conditioner is operating.

If the National Weather Service, as of 5 pm the previous day, forecasts the temperature to be over 80° F, shade structures must be available at the beginning of the shift and present throughout the day.

Regardless of predicted temperatures, supervisors must always have the capability to provide shade promptly if it is requested by an employee. If the temperature exceeds 90° F, shade must actually be present regardless of the previous day's predicted temperature high.

Acclimatization

Supervisors are required to acclimatize employees and allow time to adapt when temperatures rise suddenly and employee risks for heat illness increase. Acclimatization may also be required for new employees, employees working at temperatures to which they haven't been exposed for several weeks or longer, or employees assigned to new jobs in hot environments.

Generally, about four to fourteen days of daily heat exposure is needed for acclimatization. Heat acclimatization requires a minimum daily heat exposure of about two hours of work. Gradually increase the length of work each day until an appropriate schedule adapted to the required activity level for the work environment is achieved. This will allow the employee to acclimate to conditions of heat while reducing the risk of heat illness.

It should be noted that new employees are among those most at risk of suffering the consequences of inadequate acclimatization and will be closely observed for their first two weeks on the job. Supervisors with new employees should be extra-vigilant during the acclimatization period, and respond immediately to signs and symptoms of possible heat illness.

Preventive Cool-Down Rest Periods

The purpose of the cool-down rest period is prevention of heat illness. The supervisor is required to provide access to shade for employees who believe they need a preventive cool-down rest period from the effects of heat and for any who exhibit indications of heat illness. Employees taking a “preventative cool-down rest” must be monitored for symptoms of heat illness, encouraged to remain in the shade and not ordered back to work until symptoms are gone.

Access to shade must be allowed at all times, and employees must be allowed to remain in the shade for at least five minutes.

The purpose of the preventive cool-down rest period is to reduce heat stress on the employee. The preventive cool-down rest period is not a substitute for medical treatment.

Emergency Procedures

If an employee has any symptoms of heat illness, first-aid procedures should be initiated without delay. Common early signs and symptoms of heat illness include headache, muscle cramps, and unusual fatigue. However, progression to more serious illness can be rapid, and can include loss of consciousness, seizures, mental confusion, unusual behavior, nausea or vomiting, hot dry skin, or unusually profuse sweating.

Any employee exhibiting any of the above-mentioned symptoms requires immediate attention. Even the initial symptoms may indicate serious heat exposure. If medical personnel are not immediately available onsite and serious heat illness is suspected, emergency medical personnel should be immediately contacted and on-site first aid undertaken. No employee with symptoms of possible serious heat illness should be left unattended or sent home without medical assessment and authorization.

All Supervisors and employees must be trained to recognize and respond to symptoms of possible heat illness.

If any employee exhibits signs or symptoms of heat stroke emergency medical services must be contacted. Supervisors must be able to provide clear and precise directions to the worksite and should carry cell phones or other means of communication to ensure that emergency services can be called.

High Heat Procedures

High heat procedures are additional preventative measures that the District will take when the temperature equals or exceeds 95 degrees Fahrenheit. These procedures will include the following to the extent practicable:

- a) Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site or area can contact a supervisor when necessary. An electronic device, such as a cell phone or radio may be used for this purpose only if reception in the area is reliable.
- b) Observing employees for alertness and signs or symptoms of heat illness. The employer shall ensure effective employee observation/monitoring by implementing one or more of the following:
 - Supervisor or designee observation of 20 or fewer employees, or
 - Mandatory buddy system, or
 - Regular communication with sole employee such as by radio or cellular phone, or
 - Other effective means of observation.
- c) Designating one or more employees on each worksite as authorized to call for emergency medical services, and allowing other employees to call for emergency services when no designated employee is available.
- d) Reminding employees throughout the work shift to drink plenty of water.
- e) 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.

Reporting Requirements

Constant awareness of and respect for heat illness prevention procedures and compliance with all applicable Company safety rules is mandatory. Employees should report any safety concerns to their supervisor or management.

Supervisors may issue warnings to employees and implement disciplinary actions up to and including termination for failure to follow the guidelines of this program.

The Safety Manager is authorized to issue safety warnings to departments, supervisors, and employees and stop unsafe work from continuing.

Training Requirements and Competency Assessment

The Company shall provide training for all potentially impacted employees, and their supervisors, working where environmental risk factors for heat illness are present. Training information shall include, but not be limited to:

- Environmental and personal risk factors for heat illness
- Procedures for identifying, evaluating, and controlling exposure to environmental risk factors for heat illness.

- The importance of frequent consumption of hydrating fluids, up to 1 quart (4 cups of water) per hour, when environmental risk factors for heat illness are present, particularly when employee is excessively sweating during the exposure
- The importance of acclimatization
- Types of heat illness and the common signs and symptoms of heat illness
- The importance of immediately reporting symptoms or signs of heat illness, in themselves or in co-workers, to their supervisor
- Understanding the procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by emergency medical service
- Procedures for ensuring that, in the event of an emergency, clear and precise direction to the work site can and will be provided to emergency responders

Supervisors shall receive training on the following topics prior to being assigned to supervise outdoor employees.

- The training information required of the employees, detailed above
- Procedures supervisors are to follow to implement the provisions of this program
- Procedures the supervisor shall follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures

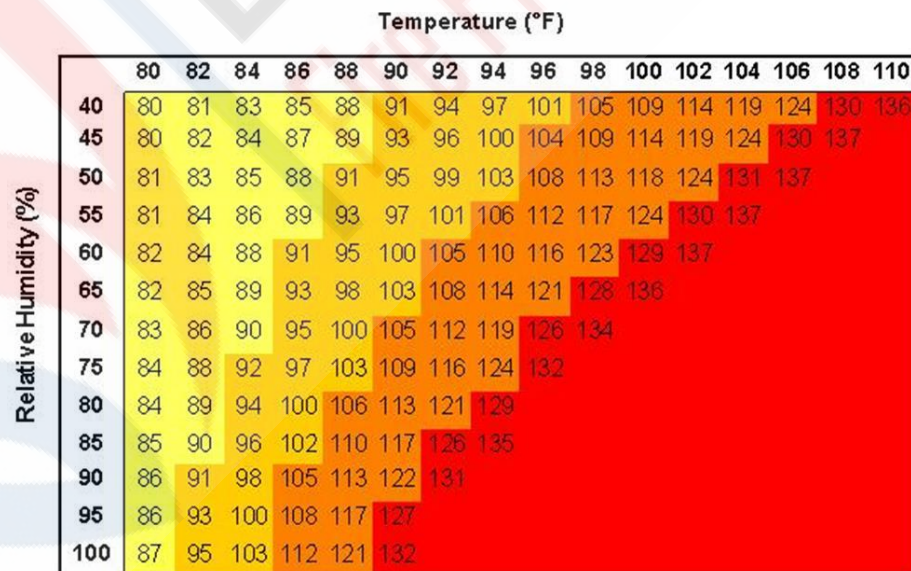
Re-training will be required under any of the following conditions:

- Changes in the workplace render previous training obsolete
- Inadequacies in an employee's knowledge of heat illness prevention indicate that the employee has not retained the required training

The Company shall maintain training records for a minimum of 3 years.

XIII. Appendices

Appendix 1: Heat Index Chart



Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

■ Caution
 ■ Extreme Caution
 ■ Danger
 ■ Extreme Danger

Appendix 2: Information and External References

- Title 8 California Code of Regulations, General Industry Safety Orders - §3395
- Heat Illness Prevention: What you need to know
<http://www.dir.ca.gov/dosh/HIPnews6-11-08.pdf>
- Heat Illness Prevention enforcement Q&A
<http://www.dir.ca.gov/DOSH/heatIllnessQA.html>
- Protect Yourself from Heat Illness
http://www.dir.ca.gov/dosh/dosh_publications/HeatIllnessEmployeeEngSpan.pdf
- To check weather forecasts, use - The National Weather Service (NOAA)
<http://www.weather.gov/>
- For Heat Safety Resources & Heat Index Chart
http://www.nws.noaa.gov/om/heat/heat_index.shtml